DOCUMENT RESUME

ED 391 933 CE 070 822

TITLE	Evaluation of Tech Prep System Development and Implementation in Texas Public Schools and Institutions of Higher Education. Final Report, 1994-95.
INSTITUTION	Decision Information Resources, Inc., Houston, TX.
SPONS AGENCY	Texas Higher Education Coordinating Board, Austin.
PUB DATE	95
NOTE	59p.
PUB TYPE	Reports - Evaluative/Feasibility (142)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	Counselor Attitudes; Employer Attitudes; Higher Education; High Schools; Needs Assessment; *Professional Development; *Program Effectiveness; Program Evaluation; Program Improvement; School Business Relationship; *School Counseling; State Programs; *Statewide Planning; Tables (Data); Teacher Attitudes; Teacher Improvement; *Tech Prep; Vocational Education; *Work Experience Programs
IDENTIFIERS	*Texas

ABSTRACT

In August 1993, a third-party evaluator examined tech prep system development and implementation in Texas public schools and institutions of higher education. The second year of the evaluation focused on the following aspects of Texas' tech prep system: current status of statewide implementation, secondary school counseling, professional development, and work-based learning. Significant progress was achieved in implementation of tech prep in Texas in the 1994-95 school year. Among the main conclusions of the evaluation were the following: (1) Texas' tech prep program appears to rate favorably on a national scale; (2) significant progress had been made since 1993-94 in many areas, including the numbers of schools and colleges participating in tech prep and offering approved programs/courses, leadership, clarity of roles, statewide transfer of articulated credit, strategic planning/marketing, and consensus regarding the definition of tech prep; (3) although most secondary school counselors were aware of tech prep, many were still not informed about the program's specifics; (4) professional development for educators should remain a continued focus because of educators' lack of familiarity with the program's specifics; and (5) although business/industry involvement in tech prep has increased, lack of business/industry participation statewide continues to be problematic. (Contains 16 tables and 35 references.) (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 391 933

Decision Information Resources, Inc.

Evaluation of Tech Prep System Development and Implementation in Texas Public Schools and Institutions of Higher Education

Final Report, 1994-95

Submitted to:

Tech Prep Tri-Agency Partnership
Texas Higher Education Coordinating Board
7745 Chevy Chase
Austin, Texas 78752

Submitted by:

Decision Information Resources, Inc.
610 Gray St., Suite 200
Houston, Texas 77002
(713) 650-1425

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

 BEST COPY AVAILABLE

Decision Information Resources, Inc.

EVALUATION OF
TECH PREP SYSTEM DEVELOPMENT AND
IMPLEMENTATION IN TEXAS PUBLIC SCHOOLS
AND INSTITUTIONS OF HIGHER EDUCATION

Final Report, 1994-95

Table of Contents

Acknowledgments
Executive Summary

I. Introduction 1

II. Current Status of Statewide Implementation 4

A. Student Participation 4
B. Progress during 1994-95 8
C. Difficulties in Implementation for 1994-95 10
D. Conclusion 13

III. Secondary School Counseling 14

A. Background 14
B. Evaluation Activities 17
C. Findings 17
D. Conclusion 22

IV. Professional Development 25

A. Background 25
B. Evaluation Activities 27
C. Findings 27
D. Conclusion 32

V. Work-based Learning 35

A. Background 35
B. Evaluation Activities 38
C. Findings 38
D. Conclusion 43

VI. Conclusion 46

References

EVALUATION OF
TECH PREP SYSTEM DEVELOPMENT AND
IMPLEMENTATION IN TEXAS PUBLIC SCHOOLS
AND INSTITUTIONS OF HIGHER EDUCATION
Final Report, 1994-95

Executive Summary

Tech Prep is a program to educate young people through a sequence of technological course work during secondary school and the first two years of college, emphasizing employable skills. In 1990, federal funds were made available to state education agencies to develop these programs. The Texas Department of Commerce (TDOC), the Texas Education Agency (TEA), and the Texas Higher Education Coordinating Board (Coordinating Board) formed a partnership to disperse funds to consortia and oversee the program for the state of Texas. In August 1993, Decision Information Resources, Inc. of Houston, Texas, began evaluation services with the tri-agency partnership through a contract with the Texas Higher Education Coordinating Board to evaluate the implementation of Tech Prep in Texas. This report presents the findings of the second year of the evaluation. A reporting on implementation progress and difficulties, and discussions regarding the role of secondary school counselors, professional development, and work-based learning comprise the major sections of this report.

Overall, Tech Prep implementation in Texas has exhibited substantial progress during the 1994-95 school year. Based on reports from other states, results of Texas' Tech Prep program appears to rate favorably on a national scale. Unlike other states which implemented the program incrementally, Texas implemented the program statewide from the beginning. Many of the initial implementation problems exhibited in other states were also evidenced in the first few years of implementation in Texas.

However, many of the implementation difficulties observed during the 1993-94 academic year have been overcome. Compared to the 1993-94 student data, the number of Tech Prep students in secondary schools more than doubled, while the number of postsecondary Tech Prep students nearly tripled in the 1994-95 school year. There are more schools and colleges participating in the program. There are more approved programs being offered at high schools and colleges. Leadership and the clarity of roles at the state level have improved, leading to better communication and cooperation between and among state agencies and the consortia. In addition, the issue of a statewide transfer of articulated credit is being addressed. At the state and local levels, strategic planning and marketing of the program have improved. Also, there appears to be more of a consensus among directors regarding the definition of a Tech Prep student. Remaining problematic areas include: the definition, identification, and coding of Tech Prep

secondary school students; business participation; uncertainties about funding and Tech Prep's role under School-to-Work; and inconsistencies in implementation.

Secondary School Counseling

Evidence was seen that the program's marketing efforts have been successful. Educators are aware of Tech Prep. The majority of secondary school counselors who were interviewed or surveyed had heard of the program. Also, of those working with Tech Prep, the majority are favorable towards the program. Although the majority of the counselors are aware of Tech Prep, many are not informed about the specifics of the program. Based on the comments from the interviews and surveys, this lack of information stems from inconsistent implementation among the schools and general misconceptions about the program.

Professional Development

Because of the lack of familiarity with the program's specifics, professional development for educators should be a continued focus. The majority of consortia staff indicated that professional development has been a focus of the last two years. Teachers and counselors who attended development activities were asked about the activities' usefulness. Although responses depended on the topic of the session, in general, sessions providing new information and those which the participants deemed as practical and useful were rated more favorably.

Work-based Learning

Although business and industry involvement in Tech Prep has increased from last year, the lack of participation from this group statewide continues to be problematic. Based on the results of interviews and surveys, this can be largely attributed to business and industry's lack of awareness of the program. In addition to non-participants being unfamiliar with the program, participants seem to lack a general understanding of the Tech Prep concept. State and local marketing efforts to business and industry are needed to increase employer understanding of and participation in the Tech Prep program. To increase employer interest in the program, it is also important for consortia to research the types of activities in which local businesses are most interested in participating.

I. INTRODUCTION

In August 1993, Decision Information Resources, Inc. (DIR) of Houston, Texas, began evaluation services with the tri-agency partnership (the Texas Higher Education Coordinating Board, the Texas Education Agency [TEA], and the Texas Department of Commerce [TDOC]) to evaluate the implementation of Tech Prep in Texas. This report presents the findings of the second year of the evaluation. A report on implementation progress and difficulties; and discussions regarding the role of secondary counselors, professional development, and work-based learning comprise the major sections of this report.

Current Status of Tech Prep at the National Level

The Tech Prep program is beginning the last year of its five-year funding cycle under the Carl D. Perkins Vocational and Applied Technology Education Act. To date, Tech Prep findings at the national level for the 1994-95 school year have not been released. In 1993, however, about 5,400 out of 11,500 secondary school districts reported having some Tech Prep activities. Approximately 400 of these secondary programs met the federal criteria for being defined as Tech Prep and graduated at least some students; 73 postsecondary institutions met the criteria and had students participating. The majority of programs were just getting started in 1992, and most of these enrolled their first students in 1993.

Results of the program throughout the country are unclear. Although many programs were reported to be in place and many educational institutions are participating in Tech Prep, the number of students participating has been proportionally low. Also, many consortia throughout the country reported limited progress made on all aspects of the program (e.g., curricula development, professional development, career exploration, articulation agreements). State evaluation reports throughout the country indicated that Tech Prep was often perceived as another version of traditional vocational education. The primary problem with implementing the Tech Prep program has been the lack of a consistent definition for both the program and a participating student. Many states, and consortia within those states, maintained programs with differing definitions, confusing definitions, or no definition. However, it has also been noted that such problems are being resolved and improvement of the program has been documented with each year (Boesel, Rahn, & Deich, 1994).

The U. S. Department of Education (ED) reports that federal spending on Tech Prep for 1994-95 was $103.7 million, with an average allotment of $2.0 million to participating states. Funding for the first three years of the program was: $63.4 million (91-92), $90 million (92-93), and $104 million (93-94); and the average allotment to participating states was: $1.2 million (91-92); $1.7 million (92-93), and $2.0 million (93-94). According to the latest figures, more than 1,200 Tech Prep consortia of

postsecondary and secondary schools receive federal and state funding each year ("Voc Ed Advocates Rally for Tech Prep Setaside," 1995). Recent ED figures indicate that the 1994-95 allotment to Texas was $8.1 million, the second largest allotment to participating states. California received the largest allotment ($10.9 million).

Funding for the program is expected to continue, although the actual amount and form of disbursement remain in question. It has been proposed for fiscal year 1996 to consolidate six vocational education programs, including Tech Prep, into state block grants. Overall, vocational education spending would remain at $1.17 billion. Several bills are being considered in Congress that would also merge vocational training money into a single block grant to each state. These bills have proposed spending cuts in vocational training.

Current Status of Tech Prep Within Texas

Overall, Tech Prep implementation in Texas has exhibited substantial progress from the 1993-94 school year. Based on reports from other states, results of Texas' Tech Prep program appears to rate favorably on a national scale. Unlike other states which implemented the program incrementally, Texas implemented the program statewide from the beginning. Many of the initial implementation problems exhibited in other states–those noted above–were also evidenced in the first few years of implementation in Texas.

However, evaluation findings from 1994-95 indicate that many of the initial difficulties have been overcome. Student participation in the program has increased at both the secondary and postsecondary levels. There are more approved programs being offered at schools and colleges. Leadership and the clarity of roles at the state level have improved, leading to better communication and cooperation between and among state agencies and the consortia. In addition, the issue of a statewide transfer of articulated credit is being addressed. At the state and local levels, strategic planning and marketing of the program have improved. Also, there appears to be more of a consensus among directors regarding the definition of a Tech Prep student. However, some problematic areas include: the definition, identification, and coding of Tech Prep students; business participation; uncertainties about funding and Tech Prep's role under School-to-Work; and inconsistencies in implementation.

The federal structure of Tech Prep beyond the 1995-96 fiscal year is currently unknown. Tech Prep implementation in Texas may also be influenced by a recently approved workforce consolidation plan in the state. The new legislation abolishes the Texas Employment Commission but retains its infrastructure as the foundation for a new Texas Workforce Commission. The new agency will administer 24 employment and training programs which are currently administered from ten agencies. At the time of this report, state education administrators indicate that Tech Prep is likely to be managed through the School-to-Work Opportunities Act. Although the Texas Council on Workforce and Economic Competitiveness (TCWEC) currently oversees School-to-

Work, most administrative functions are being coordinated through the Texas Higher Education Coordinating Board.

While uncertainties remain about how Tech Prep will operate under School-to-Work, many efforts are being made on the part of Tech Prep directors to prepare for merging the activities; many view 1995-96 as a transition year. In addition, Texas is currently submitting a consolidation plan to ED explaining how federal vocational education and Title I dollars will be combined to build on the elements of school-to-work reform.

Evaluation of Tech Prep in Texas

DIR's goals for the second-year evaluation of Tech Prep included:

- report on current implementation of the program,
- assessment of the role of secondary counseling,
- report on professional development activities at the state and consortium level, and
- identify effective approaches to work-based learning programs.

To meet the evaluation goals, DIR:

- visited eleven consortia for two days each,
- obtained survey responses from secondary counselors,
- obtained survey responses from business representatives,
- collected student data from consortia directors, TEA, and the Coordinating Board,
- attended statewide and regional Tech Prep conferences, and
- conducted follow-up telephone interviews with Tech Prep directors.

These activities created the data sources for this evaluation, including 347 counselor surveys; 64 employer surveys; interview responses from Tech Prep directors, counselors, principals, employers, and other consortia members; program materials, quarterly reports, and demographic information on participating Tech Prep secondary and postsecondary students. The conclusions and recommendations in this report are based on these data.

II. Current Status of Statewide Implementation

The Tech Prep program has recently completed its fourth year of implementation. This section updates the numbers of programs and participating students. Also included is an update on the progress made in other areas, specifically those areas identified as problematic in the 1993-94 evaluation. Difficulties in implementation which were noted during the 1994-95 evaluation conclude this section.

Student Participation

The 1994-95 school year exhibited substantial growth in the Tech Prep student population in both secondary and postsecondary schools in Texas. Compared to the 1993-94 student data, the number of Tech Prep students in secondary schools more than doubled, while the number of postsecondary Tech Prep students nearly tripled in the 1994-95 school year. In addition to growth in the Tech Prep student population, the number of independent school districts (ISDs) and colleges offering approved Tech Prep programs significantly increased. Almost half of the 1,067 ISDs in the state have approved programs, nearly doubling the number of ISDs that had programs in the 1993-94 school year. Also, the number of approved Tech Prep programs from postsecondary institutions almost doubled in growth from the previous year from 23 to 54.

Texas High School Students in Tech Prep

In the 1994-95 school year, there were 503 ISDs with approved Tech Prep programs, compared to 276 ISDs that had programs the previous year. Table 1 presents the number and percent of Texas high school students participating in Tech Prep, broken down by grade, ethnicity, gender, limited English proficiency status (LEP), and low socioeconomic status (SES). For comparison, the same variable breakdowns are presented for all Texas high school students. Percentages are of totals in the far right column. Data were provided by the Texas Education Agency's (TEA) Public Education Information Management System (PEIMS). They are from fall 1994. The students listed are those coded as "a participant in the district's Tech Prep program" in the PEIMS vocational field.

In the 1994-95 school year, there were 956,548 secondary high school students in Texas, representing a four percent decline from 997,783 secondary students from 1993-94. According to PEIMS data, there were 25,956 secondary students for the 1994-95 school year enrolled in Tech Prep, compared to 11,398 students enrolled in 1993-94. These figures indicate that the number of secondary high school students for 1994-95 enrolled in Tech Prep in Texas more than doubled from the previous year to comprise three percent of the state's secondary students. Of the 1994-95 Tech Prep students, 65 percent (16,749) were juniors and seniors, comprising almost four percent of all juniors and seniors in the state.

Table 1. High School Student Participation in Texas Tech Prep

	American Indian				Asian				Black				Hispanic				White				
	Male		*Female*		*Male*		*Female*		*Male*		*Female*		*Male*		*Female*		*Male*		*Female*		
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	Totals
All Students																					
Grade 9	380	0	343	0	3545	1	3402	1	25716	8	23950	7	63257	20	55978	17	76728	24	69863	22	323162
LEP	12		16		762		606		76		57		14521		11014		177		126		27367
Low SES	135		114		1108		900		12250		11421		38826		33680		12123		9885		120442
Grade 10	293	0	262	0	3219	1	3045	1	16782	7	17118	7	41052	17	39288	16	62853	26	60002	25	243914
LEP	10		5		641		588		43		44		8188		7265		134		104		17022
Low SES	78		76		894		805		7205		7331		23400		22793		7312		6632		76526
Grade 11	239	0	239	0	2997	1	2881	1	13126	6	14156	7	31705	15	31367	15	55409	27	53616	26	205735
LEP	9		6		564		571		38		22		4934		4747		115		97		11103
Low SES	53		58		781		750		5003		2729		16491		16822		5299		4795		55781
Grade 12	204	0	209	0	2810	2	2791	2	10870	6	12033	7	27473	15	28119	15	50042	27	49186	27	183737
LEP	4		2		438		390		14		22		3276		3034		52		66		7298
Low SES	35		29		666		668		3365		3936		13118		13960		3354		3438		42569
Totals	1116	0	1053	0	12571	1	12119	1	66494	7	67257	7	163487	17	154752	16	245032	26	232667	24	956548
Tech Prep																					
Grade 9	5	0	6	0	24	0	19	0	207	4	168	3	1233	26	1205	25	1221	25	724	15	4812
LEP	0		2		1		0		0		0		158		172		1		0		334
Low SES	1		4		6		3		116		96		790		816		214		127		2173
Grade 10	4	0	4	0	25	1	28	1	175	4	230	5	734	17	755	17	1319	30	1121	26	4395
LEP	0		0		4		2		0		1		64		45		1		1		118
Low SES	0		1		4		4		103		429		425		448		177		158		1749
Grade 11	6	0	12	0	69	1	66	1	295	4	435	6	1066	14	1279	16	2316	30	2271	29	7815
LEP	0		0		1		2		0		0		84		61		1		1		150
Low SES	0		4		13		22		137		202		533		641		221		233		2006
Grade 12	5	0	16	0	71	1	94	1	337	4	555	6	1161	13	1511	17	2417	27	2767	31	8934
LEP	0		0		6		4		0		0		59		63		0		1		133
Low SES	1		1		20		24		107		203		504		644		170		173		1847
Totals	20	0	38	0	189	1	207	1	1014	4	1388	5	4194	16	4750	18	7273	28	6883	27	25956

Fifty-one percent of Tech Prep students were female, compared to 49 percent of all female secondary students recorded in PEIMS. The number of female Tech Prep students grew by two percent from the previous year. Table 2 compares percentages of Tech Prep secondary school participants to all secondary school students by ethnicity. Table 3 compares percentages of Tech Prep secondary school participants to all secondary school students by special status. For both of these classifications of special status (as with all of these variables), it should be noted that these percentages are only for secondary students (9th through 12th grade), not elementary.

Table 2. Comparison of Tech Prep Secondary Participants to All Secondary Students, Percents by Ethnicity

	Tech Prep	*All Students*
White	55%	50%
Black	9	14
Hispanic	34	33
Asian	2	3
American Indian	<1	<1

Table 3. Comparison of Tech Prep Secondary Participants to All Secondary School Students, Percents by Special Status

	Tech Prep	*All Students*
Limited English Proficient	3%	7%
Low Socioeconomic Status	30	31

As indicated in Tables 1, 2, and 3, Tech Prep enrollment in secondary institutions is rather representative of the total population by gender, ethnicity, and special status. Exceptions were Black students and limited English proficient students who were under-represented in the program.

Texas Postsecondary Students in Tech Prep

For coding purposes, the Coordinating Board defines a Tech Prep student as any student enrolled in a state-approved Tech Prep program. As with PEIMS data, the Coordinating Board data are from fall 1994. Comparisons to current statewide totals of all Texas students are for two-year institutions for which data are available.

According to the Coordinating Board data, 25,353 postsecondary students were enrolled for fall 1994, compared to 8,591 students enrolled in fall 1993. The 25,353 Tech Prep students represented over 16 percent of the 412,428 students enrolled in two-year institutions in the state. A majority (58%) of postsecondary Tech Prep students were

full-time. Seventy percent were enrolled in less than 12 hours and the remainder were enrolled in 12 or more hours.

Similar to the 1993-94 school year, the majors with the two largest groups of Tech Prep college students for 1994-95 were health professions (34%) and business management and administrative services (22%). Other majors of Tech Prep participants included: protective services (11%), engineering-related technologies (11%), precision production (7.9%), computer and information services (6%), vocational home economics (5%), mechanics and repairers (2%), marketing (.9 percent), science technologies (.4%), agricultural business (.3%), education (.2%), and construction trades (.2%). The percentage of students in most of the majors remained about the same from the previous year. An exception included engineering-related technologies, which increased by over ten percent.

Progress during 1994-95

Feedback received during the 1993-94 evaluation of Tech Prep indicated that there was a significant number of problematic areas hindering the implementation of the program in the state. Substantial progress has been made in many of these areas in the past year. Of the 26 recommendations made in the 1993-94 report, all have been addressed and all but a few have been resolved. It should be noted that these unresolved issues are not Tech Prep-specific (e.g., coding of students at the secondary level, statewide transfer of articulated credit at the postsecondary level). This section discusses the progress of Tech Prep implementation during 1994-95.

Communication

Leadership and the clarity of roles at the state level was problematic during the first few years of Tech Prep implementation in the state. Many comments received during site visits centered around the tri-agencies' lack of direction, and assistance and support for the program. This area has shown substantial improvement in the past year. During this year's site visits, directors reported that there was stronger and more focused leadership at the state level. Better communication and cooperation from the Texas Education Agency (TEA) and the Texas Higher Education Coordinating Board were noted, particularly their expedient response to consortia inquiries and program approvals, and their overall support for the program. However, the lack of participation from the Texas Department of Commerce (TDOC) remains. In contrast to last year, turf battles between the agencies were not viewed as an issue. There was also less turnover among tri-agency staff.

Another issue that was addressed from last year was the need for better dissemination of information regarding funding and application processes from the state level to the consortia and from consortia to consortia members. Many consortia had stated that they were unclear on the dispersion of funds—the process as well as the funding criteria. It was also noted that, within a few consortia, consortia members did not

women. Table 4 below compares the percentages of Tech Prep postsecondary school participants to all students at two-year institutions by ethnicity. Table 5 below compares percentages of Tech Prep postsecondary school participants to all students at two-year institutions by special status. Postsecondary categories were those used by the Coordinating Board, whose definition of codes differs from TEA's PEIMS.

Table 4. Comparison of Tech Prep Postsecondary School Participants to All Students at Two-Year Institutions, Percents by Ethnicity

	Tech Prep	*All Students*
White	63%	54%
Black	11	13
Hispanic	21	27
Asian	3	4
American Indian	1	<1

Table 5. Comparison of Tech Prep Postsecondary Participants to All Students at Two-year Institutions, Percents by Special Status

	Tech Prep	*All Students*
Academically Disadvantaged	36%	34%
Physically Disabled	10	6
Economically Disadvantaged	23	20
Limited English Proficient	4	6

Similar to secondary schools, Tech Prep enrollment in postsecondary institutions appears to have been rather representative of the total population by gender, ethnicity, and special status. An exception was Hispanic postsecondary students who were under-represented in the program; white and physically disabled students were somewhat over-represented.

The number of colleges in which Tech Prep students were enrolled increased from 23 in 1993-94 to 54 in the 1994-95 school year. Enrollment averaged 470 students per school, ranging from 11 at two of the institutions to 2,316 at one institution. This compares with the fall 1993 enrollment average of 374 students per school. As defined by the number of hours completed, 58% (14,786) of the fall 1994 students were first year; 25% (6,369) were second-year; 13% (3,389) were third-year; two percent (456) were fourth-year; and one percent (353) were fifth year. Of the 25,353 Tech Prep postsecondary students, almost 14% were enrolled in three credit hours (generally, the equivalent of one course); almost 14% were enrolled in six hours; and 11% were enrolled in 12 hours which is generally the minimum course load for a student to be considered

understand the funding process within their respective consortium. To help address this problem, the Coordinating Board provided consortia staff with alternative methods for allocating funds, including figures on how much money each consortium would receive under each method. A vote of consortia directors determined the future statewide allocation of Tech Prep funds.

In addition to improved relations between the state and consortia, the directors also reported stronger partnerships among groups within the consortia. Overall, directors reported enhanced cooperation between ISDs and postsecondary institutions, and increased business involvement. For some consortia, however, such partnerships remain problematic.

To enhance communication within and among consortia and reduce duplication of efforts, the Coordinating Board recently requested applications for discretionary grants to create a state clearinghouse of Tech Prep materials. Many materials to date have been individually developed and therefore duplicated in the development process.

Definition, Identification, and Coding of Participating Students

One of the problematic issues noted during the 1993-94 evaluation was the lack of a consistent statewide definition of Tech Prep. This year, there appears to be more of a consensus among directors on the definition of a Tech Prep student. At the ISD level, however, inconsistencies about the definition of a Tech Prep student remain.

Statewide Transfer of Articulated Credit

In February 1995, there were 60 community and technical colleges in Texas with approved Tech Prep programs, compared to 44 colleges with programs the previous year. The number of associate degree programs also increased from 216 to 236 during this time period. Within the 236 programs, 1,002 types of certificates or degrees were offered. The most recent figures (June 1995) indicate there were 1,641 approved articulation agreements between ISDs and colleges within the state.

During 1993-94, many consortia members indicated that the inability of students to transfer articulated credit hindered student participation in the program. While the issue of statewide transfer of articulated credit has not been completely resolved, the issue is being addressed by the state. To assist with program standardization, for example, an "A" is now used on transcripts to identify students who have received articulated credit hours. Tech Prep representatives are working with the Texas Association of Collegiate Registrars and Admission Officers on this process. In addition, a course manual for vocational/technical education is currently being developed. The Coordinating Board is working on additional measures to achieve a statewide transfer of articulated credit.

Strategic Planning

During the 1993-94 academic year, it was noted that many consortia lacked clear, definitive goals and objectives for implementing their Tech Prep programs. This issue was addressed by the Texas Tech Prep Directors Association. Based on the site visits and discussions with Tech Prep directors this year, it appears that consortia have placed more emphasis on strategic planning.

Statewide Marketing

The need for a statewide marketing plan was also documented in 1993-94. Key stakeholder groups, including parents and employers, were not being effectively reached through local marketing plans, and overall program awareness across the state was lacking. To date, funds have been allocated for a statewide marketing plan and a firm has been hired to develop and carry out these activities. A promotional video is also in the process of being developed. Additionally, many consortia have produced and distributed promotional materials (e.g., book covers, posters, and brochures).

Coordination of Programs

During 1993-94, it was often mentioned that many programs (Tech Prep, Texas Scholars, School-to-Work, etc.) were duplicative. Many efforts have been made to coordinate programs. The Texas Business Education Coalition, Texas Scholars, and Tech Prep personnel frequently hold joint meetings when they make presentations to schools and parents.

Difficulties in Implementation for 1994-95

Whereas most of the threats to the program during 1993-94 were internal (e.g., structure of the program; lack of a clear, consistent program definition), most of the threats to the program this year were external in nature. Some problematic areas that hindered program implementation in 1994-95 are discussed below.

Funding

During spring 1995, a Congressional recisions bill proposed to eliminate unspent funds of many social and educational programs, including the fifth-year funding of Tech Prep. The House plan, which was approved by the House Appropriations Committee, proposed to curtail Tech Prep's entire fiscal 1995 appropriation ($108 million), as part of a package to cut $1.7 billion in U.S. Department of Education (ED) programs. A representative recommended cutting the program because it appeared to overlap with School-to-Work. Following lobbying efforts, an amendment was passed to return the entire $108 million rescinded for the program. After a presidential veto, the entire legislation is being reconsidered. This process distracted from program implementation within the state during the spring 1995. It also left many uncertain about the future status

of Tech Prep at the state and national level. Many consortia members are concerned about Tech Prep allocations within the state under the proposed block grant system.

Tech Prep's Role Under School-to-Work

In addition to being concerned about funding, consortia members are uncertain about the role Tech Prep will play under the proposed School-to-Work umbrella in Texas. Based on conversations with consortia members, this uncertainty has diverted the attention of many away from program implementation. Some consortia members are optimistic about Tech Prep being a part of School-to-Work, anticipating benefits such as increased work-based learning opportunities and program awareness. Others, in contrast, fear that Tech Prep will lose its focus under the School-to-Work initiative.

Definition, Identification, and Coding of Participating Students

As noted earlier, mixed definitions about Tech Prep students are problematic at the ISD level. This is evidenced in the discrepancy between the codes TEA and ISDs use to record Tech Prep students.

TEA maintains school, teacher, and student data on all Texas K-12 schools in the PEIMS database. According to the coding information in the PEIMS Data Standards, career and technology is a four option code:

- 0 - no participation in career and technology courses,
- 1 - enrolled in one or more state-approved career and technology courses as an elective,
- 2 - participant in the district's career and technology coherent sequence of courses program, and
- 3 - participant in the district's Tech Prep program.

Codes "1" and "2" may be part of a Tech Prep program at a school. However, according to the TEA definition of Tech Prep, the fourth option, a "3," is the code for a Tech Prep student. Although codes "1" and "2" may both be a part of a Tech Prep program, the difference between these two codes and "3" is the signed letter of intent which TEA defined as a requirement for being designated a Tech Prep student. Table 6 lists the totals of 9th through 12th grade students in the 1994-95 PEIMS' vocational field by code.

Table 6. Totals of 9th -12th Grade Students in the 1994-95 PEIMS' Vocational Field

	Grades 9-12
Code 1	359,768
Code 2	99,711
Code 3	25,956
Total in the field:	485,435

As mentioned above, PEIMS codes students as Tech Prep only if they sign a letter of intent (Code "3"). However, many schools do not use the signed letter of intent and define their students as Tech Prep if they are taking vocational education electives (Code "1") or in a coherent sequence of courses (Code "2"). Several directors reported that high schools and colleges do not maintain accurate student counts.

DIR compared the list of students from one consortium to TEA's PEIMS list. Names of participating students were submitted for 19 schools. Consortium staff reported 1,658 participating students for these schools and 514 were reported to PEIMS by the schools as being in the program. Sixty-nine percent of the students on the consortium list were not in PEIMS. Twenty-three percent of the students on the PEIMS lists for the schools were not on the consortium list. Therefore, inaccuracies were in both directions and covered all grades, nine through twelve. We cannot conclude that the numbers are inflated by school personnel responsible for coding the Tech Prep field in PEIMS. Although some schools did in fact report more numbers than the Tech Prep personnel, some schools under-reported. There was only one school that was completely accurate in coding this field. The worst reporting discrepancy occurred with one school that reported having 406 Tech Prep students and only three percent were in PEIMS.

In addition to finding inconsistent definitions of a Tech Prep student, our evaluation also identified widespread mixed interpretations of the Tech Prep program at the ISD level. Survey and site visit findings indicate that secondary school counselors hold a wide range of views on the definition on the program. For example, some counselors commented that Tech Prep is just another vocational education program, while other counselors viewed Tech Prep as a program that is only for high academic achieving students.

Business Participation

Lack of business participation continues to be an obstacle to program implementation. Several consortia directors reported that it was difficult to obtain and/or maintain business representation on advisory committees due in part to scheduling difficulties and lack of employer interest in meeting topics. Other directors reported that finding employers to provide work-based learning sites was a barrier. This issue will be further discussed in Section V of this report.

Participation of Educators

Although the number of postsecondary Tech Prep students has nearly tripled since 1993-94 and more schools are offering Tech Prep programs, some consortia continue to experience difficulties with program implementation at these institutions. Problems include lack of identified contact points at the colleges to answer student questions about Tech Prep, and senior-level college registrars being uninformed about articulated credits. These problems might be attributed to two primary factors: difficulty in making initial contacts or finding the appropriate personnel at the postsecondary level who are interested

in the program and willing to participate, even if they do not have complete control over implementation activities; and the lack of interest on the part of four-year colleges to work with two-year colleges on articulated credits.

Conclusion

The 1994-95 school year exhibited substantial growth in the Tech Prep student population in both secondary and postsecondary schools in Texas. The number of approved Tech Prep programs offered at these institutions also significantly increased from the previous year. The majors with the two largest groups of Tech Prep college students were health professions and business management.

Findings from 1994-95 indicate that many of the difficulties hindering the implementation of Tech Prep in Texas during 1993-94 have been overcome. Improved leadership and clarity of roles at the state level have led to better communication and cooperation between and among state agencies and the consortia, although lack of participation from TDOC is still problematic. Consortia staff and members have a better understanding of the funding and application processes. Stronger partnerships within the consortia were reported by many directors. There appears to be more of a consensus among directors on the definition of a Tech Prep student. The statewide transfer of articulated credit is being addressed, and improved efforts have been made in strategic planning, statewide marketing, and coordination of programs.

While significant improvement has been made, some problematic areas hindered program implementation during 1994-95. ISDs, for example, continued to differ in their definitions of Tech Prep students, as evidenced in the coding discrepancies discussed in this section. Part of this problem can be attributed to the letter of intent, which PEIMS requires students to sign in order to be coded Tech Prep. Many schools do not use letters of intent to define their students as Tech Prep. Others may not understand or be aware that the letter is a requirement for coding Tech Prep students.

In addition to there being inconsistent definitions of a Tech Prep student, mixed interpretations of the Tech Prep program also exist. Variations in definition range from just another vocational education program to a program that is for high academic achieving students. These inconsistencies in definitions of both the program and participating students may signify that consistent definitions of the two are not being appropriately communicated from the state and consortium levels.

Other problematic areas in 1994-95 were: lack of participation from businesses and postsecondary educators for some consortia, and uncertainties about funding and Tech Prep's role under School-to-Work.

III. SECONDARY SCHOOL COUNSELING

State and consortium staff requested that the role of the secondary school counselor be investigated as one aspect of Tech Prep implementation. In this section, we provide some background of secondary school counseling and guidance, briefly report our data collection activities regarding counselors, and present the findings from these activities regarding the role of secondary school counselors in implementing Tech Prep. Recommendations conclude this section.

Background

History of Counseling and Guidance

At the beginning of the twentieth century, guidance in American public schools generally consisted of helping students select a vocation. Often, the emphasis was on analyzing individuals and jobs and matching the strengths of each to the other. Choice of vocation was separate from the personal problems of students. During the 1920s, counselors began to help students to adjust to changing city and school environments. The focus on the counselor's role and the preparation of counselors began in the early 1930s, when guidance was thought to be simply complementing education and assisting students by helping them with what they know and pointing them in the right direction. An additional but separate development in the first half of this century was the idea of psychological counseling of students. It should be noted that all of these early models were focused on the secondary level (Shertzer & Stone, 1981).

In the early 1960s, reforms promoting a wider scope of the counselor's role led to the development of the model for what continues to be current practice in many schools; namely, a school counselor should provide an array of services, from counseling a student regarding problems at home to informing the student about college and career choices. It was during this time that the term guidance fell out of favor and was replaced by counseling. The role and function of the counselor began to be clarified (e.g., counseling practicums were required during preparation), and expanded (Shertzer & Stone, 1981). Throughout the development of school counseling and guidance this century, the focus has been on two themes: (a) the development of human capital, and (b) personal development (Herr, 1979).

Current Models of Counseling and Guidance

Due to a changing society, the population and environment of today's schools have also changed. Different issues require educators' attention today, even at early grades, which were not prevalent 20 and 30 years ago. These include:

- more prevalent substance abuse among youth,
- a changing definition of the family (including a higher percentage of single parent families),
- a dynamic economy, and
- dynamic needs of the workforce (especially those based in technology).

To meet the demands placed on school counselors regarding these issues, the role of counselors has expanded. Currently, counselors' responsibilities include:

- academic remediation,
- psychological testing,
- physiological testing,
- counseling of students with special needs (e.g., family problems, developmental problems, substance abuse),
- academic guidance, and
- career guidance.

In addition to these different areas to which counselors attend, they are often required to complete extraneous paperwork and non-counseling related tasks. In one survey, counselors indicated that almost half of their time is spent with non-counseling tasks (paper work, scheduling, and administration) (Partin, 1993). Results of another survey (Roberts & Borders, 1994) indicated that supervision of counselors varies and that existing practices do not always match counselors' preferred supervision which they report as necessary.

Besides the changing student populations, school environments, and the changing role of counselors to meet demands, a number of problems have been noted with the policies and design of guidance programs throughout the country:

- the actual practice of counselors often does not match the goals of the overall program,
- the role of the school counselor often is not clear,
- the preparation of counselors may not be adequate,
- career guidance has been set aside,
- school counselors may not be prepared for meeting the needs of special populations,
- leadership for counseling and guidance is often missing,
- research and evaluation is often missing, and
- poor interprofessional relationships limit communication. (Herr, 1979)

To address such problems, many reforms have been proposed in the past ten to fifteen years. Most notably is the acknowledgment of the expansion of the counselor's role. As opposed to the traditional one-on-one interaction between counselor and student (usually in a crisis situation regarding personal problems), the new proposals include

comprehensive programs. For example, it has been recommended that counselors should view each student as part of a larger whole, such as the family, and should consider individual difficulties within the larger framework (Peeks, 1993). Mitchell and Gysbers (1978) recommended that guidance programs should be comprehensive, student-centered, consistently implemented, development oriented instead of problem oriented, and responsible for outcomes. Others have suggested that counselors should enhance school climate (Kaplan & Geoffroy, 1990), that management is the key (Rye & Sparks, 1991), or that standards for counselor certification will improve counseling and guidance (Association for Counselor Education and Supervision, 1990).

Reforms in counseling and guidance programs have made an impact. For example, the inclusion of social foundations courses in counselor education programs have helped to emphasize a "total community" approach to guidance (Rotter, 1990). However, outcomes of such programs and their change of emphases have not yet been documented. Although much of the literature emphasizes the need for accountability, there has to date been few systematic, large-scale collections of accountability information (Fairchild, 1993). Fairchild (1994) has recommended that accountability efforts such as time analysis (keeping daily logs, etc.) will improve time management skills, improve services, provide evidence of effectiveness, and enhance the professional image of counselors.

Summary

In reviewing studies related to counseling and guidance programs, previous research leads us to the following conclusions:

- Personal development and the development of human capital comprise the primary responsibilities of school counselors.
- Traditionally, school counselors have, on a crisis basis, focused on students with special needs.
- In the past ten to fifteen years, many models have advocated counselor roles that are more developmental and preventive, more comprehensive and balanced for individual students, and group oriented.
- Because of high student/counselor ratios and an academic emphasis by school administrations, counselors spend much of their time on academics (especially remediation) and on non-student tasks (e.g., paperwork).

As stated, the original role of counselors was career guidance at the secondary level, but, throughout this century, other responsibilities have been added. Many are within the purview of counseling and guidance. However, many administrative and clerical tasks have also become part of the counselor's role in many schools.

Evaluation Activities

The goal of this aspect of the evaluation was to assess the role played by counselors in Texas public secondary schools with regards to the implementation of Tech Prep. The primary focus was on activities and attitudes, especially regarding student recruitment, dissemination of information, and recommendations to improve the role of counselors in Tech Prep. It was intended that our investigation of this topic would yield an understanding of the actual day-to-day activities of Texas counselors, which in turn, could be used to consider the role of Tech Prep in the current models of counseling and guidance, and lead to an appropriate development of policies for counseling and guidance practices in the state of Texas with regards to Tech Prep.

Reviewing literature and Texas Education Agency (TEA) data, conducting individual and focus group interviews, and surveying a sample of counselors comprised the primary activities for this part of the evaluation project. Interviews were conducted during site visits to eleven consortia. Interview questions concerned personal history, daily activities, attitudes toward Tech Prep, and reasons for participating or not participating in the program. The purpose of the survey was to obtain data on demographics, activities, and attitudes toward Tech Prep.

Findings

Counseling and Guidance in Texas

The latest figures indicate that there were 7,780 counselors in Texas public schools during the 1993-94 academic year (7,558 of these were assigned to campuses). Gender and ethnicity staffing patterns were similar to those of teachers. Eighty-two percent were female, 70% were white. The average age of the counselors was higher than that of teachers: 84% were 40 years of age or older; the average age was 47. The average salary of Texas school counselors was $38,144 in 1993-94. Seventeen percent of the state's public schools (1,085 campuses) with seven percent of the state's public school students (267,316 students) did not have a full-time counselor. The average student/counselor ratio in Texas schools was 476 to 1; some schools reported a ratio of over 1,000 to 1 (Texas Education Agency, 1994).

The current state model for counseling and guidance includes four areas:

- a guidance curriculum, providing information and instruction to students;
- responsive services, addressing immediate needs of students;
- an individual planning system, helping students understand their development, set goals, and plan to reach those goals; and
- system support, including program development and counselor professional development. (Texas Education Agency, 1990)

However, the actual day-to-day practice of school counselors may not match the desired state program with the components listed above. Many of the difficulties and distractions mentioned in the previous section may hinder full implementation of this desired model.

Demographics of Survey Respondents

The survey was sent only to counselors at comprehensive high schools in the state. Forty-six percent (347) of the 750 surveys distributed were returned. Two-thirds of those who completed the survey were at schools with student enrollments over 1,000. The majority (87%) were at schools with grades nine through twelve. One-third were in urban areas greater than a population of 100,000; 30% were rural schools; 26% were suburban; the remainder were in urban areas with less than 100,000 in population.

Of the counselors who responded to the survey, Table 1 indicates the number of students for which each counselor was responsible. Seventy-five percent were responsible for 300 or more students. On average, the higher the enrollment in the school, the more students for which counselors are responsible (r = .43, p = .000). (The "r" is the correlation and "p" is the probability of statistical significance.) Also, the higher the enrollment, the more counselors at the school (r = .38, p = .000). However, the number of counselors at a school does not necessarily lead to more students per counselor (r = .08, p = .133).

Table 1. Number of Students per Counselor

Number of Students	*Counselors Reporting*	
	Number	*Percent*
1 to 50	1	<1
51 to 100	5	1
101 to 200	16	5
201 to 300	63	18
301 to 400	106	31
401 or more	153	44

Another description of the schools at which the counselors worked is post-graduate status of the students. On average, 36% of graduates at their schools were reported to enter four-year colleges; 26% go to two-year colleges; 25% to work; 9% to trade school; and the remainder to the military or other status.

Of the counselors responding to the survey, Table 2 indicates the percentage of students at the school who were categorized as "at risk" of dropping out of school. Thirty-nine percent defined at-risk according to the state definition; only six percent used a local/district definition; and fifty percent used a combination of both state and local definitions.

Table 2. Percentage of At-risk Students

Percentage of At-risk Students	*Counselors Reporting*	
	Number	*Percent*
0 to 10	18	6
11 to 20	47	14
21 to 30	57	17
31 to 40	69	21
41 to 50	49	15
50 or more	90	27

Table 3 indicates the number of students counseled during the course of an average week. Two-thirds reported counseling between 11 and 50 students during an average week.

Table 3. Number of Students Counseled per Week

Number of Students	*Counselors Reporting*	
	Number	*Percent*
1 to 10	38	12
11 to 25	114	34
26 to 50	114	34
51 to 75	44	14
76 or more	20	6

Counselors' Current Responsibilities

When asked about the most important part of their job, many counselors responded: "aiding students in planning their futures," "helping students graduate," "providing career information," "assisting young people to choose the very best way to achieve their dreams," "encouraging students," and "directing students." However, many counselors reported activities which they say do not allow them to directly help students in positive ways. These sentiments were echoed by counselors who were interviewed; many stated that their time is divided among many non-counseling activities. The three most often heard were:

- course scheduling (usually, students are assigned to counselors by last name and/or by grade),
- test scheduling (mostly for the Texas Assessment of Academic Skills [TAAS] but also specialized testing for academics [SAT, ACT, end-of-course], psychological, and physical assessments), and
- paperwork (scholarship applications, Chapter 1 and other special programs, vocational reporting).

These activities vary among schools and sometimes among counselors within the same school. In addition, many counselors are involved with crisis counseling (e.g., family problems, school violence), conducting Admission/Referral/Dismissal meetings (ARDs), and referring students to outside entities for specialized help (e.g., drug abuse, mental disorders). Many counselors are also the school's coordinator for the Public Education Information Management System (PEIMS).

The responsibilities of secondary school counselors varied according to demographics such as the number of students per counselor or the status of the student population (e.g., a high percentage of at-risk students may lead to more reporting related to Chapter 1, schools with fewer counselors often require more counselor responsibilities). The number and type of counselors' responsibilities also depended on the factors such as school and district policies (e.g., an emphasis on postsecondary education may lead to counselors working with a larger number of scholarship applications).

Counselors' Views of and Work with Tech Prep

Ninety-five percent (327 counselors) of those responding to the survey reported being aware of the Tech Prep program. When asked how they first heard of Tech Prep, 27% of the counselors reported having heard of the program from the local Tech Prep staff. The second highest ranked source was the school's district office. Table 4 ranks the sources.

Table 4. Initial Source of Contact for Tech Prep

	Counselors Reporting	
Source	*Number*	*Percent*
Local Tech Prep staff	90	27
School district office	78	24
Attendance at conference	52	16
Local postsecondary school	28	8
Fellow counselor	28	8
Other	20	6
TEA representative	15	5
School principal	10	3
Newspaper	8	2
Secondary teacher	2	1

Two-thirds (232) of the counselors reported having a Tech Prep program. Of these, 21% had ten or less students participating in Tech Prep; 35% had between 11 and 50 students participating; and 35% had more than 50 students in the program.

Table 5 indicates the level of agreement with statements regarding Tech Prep. The level of agreement listed is a percentage of those reporting after excluding missing data and those marked as "not applicable." As with other tables in the report, percentages may not total 100% due to rounding.

Table 5. Attitudes toward Tech Prep

	Level of Agreement (by Percent)				
Statement:	*Strongly Disagree*	*Disagree*	*Neutral*	*Agree*	*Strongly Agree*
My school has a strong Tech Prep program.	17	16	22	35	10
My district is supportive of the Tech Prep initiative.	2	7	13	49	27
The local consortium has been very helpful to my school.	6	15	20	39	20
Tech Prep is an excellent program to prepare students for work.	2	3	8	42	45
My school's principal is supportive of the Tech Prep initiative.	1	5	15	44	34
I frequently recommend the Tech Prep program to my students.	2	11	18	44	24
Tech Prep is another educational reform movement that will not last.	23	37	28	11	2
Tech Prep is just another vocational education program.	25	41	18	15	1

On average, secondary school counselors are positive about Tech Prep and the support for it from their schools and districts. Demographics (e.g., school enrollment, type of community, number of counselors) were not factors in the differences found in the level of agreement with the statements about Tech Prep.

The differences in attitudes toward the program appear to be due to the differences in the way Tech Prep is implemented and to the misconceptions which some counselors have about what the program is and what it is not. For example, many counselors wrote that Tech Prep is an unchanged vocational education program; it conflicts with the state's recommended 24-credit plan; and it maintains a non-college bound stigma. On the other hand, many counselors commented that Tech Prep's purpose is only to increase college enrollment and it attracts only high academic students. Others reported uncertainty about the definition and goals of the program, writing that they were confused about the difference between Tech Prep and a coherent sequence of courses.

Barriers to Implementing Tech Prep

Table 6 indicates the level of impact each stated barrier has on non-participation. Individuals marked only one level for each barrier. The numbers for each level of impact ("none," "minor," "moderate," or "major") are the average of all percentages marked for that category. It should be noted that these items were responded to only by those whose schools are not participating in Tech Prep, totaling one-third (114) of the completed surveys.

Table 6. Barriers to Participating in Tech Prep

	Level of Impact (by percent)			
Barrier:	*None*	*Minor*	*Moderate*	*Major*
Lack of awareness of the program	22	23	36	19
Little or no school interest	15	37	29	17
Little or no district interest	25	28	30	17
Involved with other initiatives	16	18	40	25
Negative stigma of vocational education	31	29	24	16
Lack of student interest in the program	33	31	27	9
Financial constraints	21	18	25	36
Lack of time to dedicate to the program	21	20	29	29

Lack of time to devote to the program, financial constraints, and involvement with other initiatives were the highest ranked barriers. These results were confirmed by counselors' responses to open-ended questions and comments during interviews. Counselors' lack of time to devote to promoting Tech Prep, funding, school support, and a misrepresentation to students are all barriers to program implementation.

Incentives for Implementing Tech Prep

Many stated that there are enough incentives for students to be involved in Tech Prep (e.g., college credit, career opportunity). What is needed, they stated, are kept promises regarding college credit, accurate representations of the program to students, statewide acceptance of articulated credit, more choices for fields of study, and more course offerings within those fields. Many commented that students are disappointed when they learn that the college with whom their high school is articulated does not shorten the degree program and the student is still required to take the same number of hours to graduate from a two-year institution. Also, counselors reported that students are disappointed to not receive a grade from colleges which award only pass/fail status for articulated credit. The limited variety of course offerings was also mentioned often. It was also reported that information disseminated to parents would help student recruitment. In general, these comments confirm those heard across the state over the past two years. Students, in every interview, have mentioned only two incentives: college credit and an interest in the field of study (e.g., health care). Although it appears that Tech Prep staff have not widely used it to promote the program, every student who was interviewed stated that college credit enticed them to enroll in Tech Prep.

Conclusion

Summary

Secondary school counselors are aware of Tech Prep. The majority of secondary school counselors who were interviewed or surveyed had heard of the program. Also, of those working with Tech Prep, the majority are favorable towards the program. Although the majority of the educators are aware of Tech Prep, many are not informed about the

specifics of the program. Based on the comments from the interviews and surveys, this lack of information stems from inconsistent implementation among the schools and general misconceptions about the program.

From our site visits and from the review of literature on secondary school counselors, we know that lack of time due to course scheduling, testing, and paperwork are barriers to counselors performing what they state should be their role of helping and directing students with academic and career choices. These also comprise the majority of reasons given for not working further with Tech Prep; the lack of time to devote to the program, financial constraints, and involvement with other initiatives were the highest ranked barriers.

However, it is beyond the scope of Tech Prep and this evaluation to suggest a complete reform of counseling and guidance in Texas high schools, much less providing the finances necessary to create such a reform. For example, TEA (1994) reported that it would take $380 million to reduce the student/counselor ratio to 350 to 1 across the state. This translates to an average property tax rate increase of $.06 across the state. Also, it was seen on site visits that many high schools, especially large schools in urban areas, were not computerized, did not maintain an electronic database for student scheduling, and counselors recorded students' course schedules on index cards. Updating these procedures should increase counselors' time for advising students about careers, but the costs associated with improving such situations are not within the purview of Tech Prep or its budget.

It is also not appropriate to make recommendations to the Texas School Counselors Association. Counselors are well aware of the problems hindering their ability to help students. For the most part, those who were interviewed and those who responded to the survey were knowledgeable and articulate. Many of them maintained a vision of what their ideal tasks should be. Of those whose circumstances hindered these tasks (e.g., extraneous paperwork, additional non-counseling assignments), the majority offered alternative ways to better serve the students in their respective schools. Therefore, recommendations in this report are directed toward those implementing Tech Prep, suggesting ways to encourage and support counselor involvement in the Tech Prep program. The majority of these recommendations were suggested by counselors or Tech Prep staff.

Recommendations regarding Secondary School Counselors

1. Because of limited counselors' time, professional development activities should be useful, concise, and provided at convenient times of the year (e.g., scheduled away from TAAS test dates). Many counselors mentioned summer as an appropriate time. Although counselors were aware of career exploration and of Tech Prep, information on both of these topics was requested. Materials should include information not readily available to them (e.g., employment trends).

2. Information should be disseminated on what the Tech Prep program is and is not. For example, many counselors did not know that Tech Prep emphasizes postsecondary education and that postsecondary education is a part of the program. A pamphlet on Tech Prep could be mailed to every secondary school counselor in the state. The technical support at PEIMS can download a list of names and addresses and even print mailing labels.

3. Sessions should be developed specifically for superintendents, principals, and counselors at both statewide and local conferences. The majority of Tech Prep marketing and professional development activities have been targeted towards secondary school teachers. Counselors commented that school and district administrators were unfamiliar with the program, its concepts, and structure.

4. Career exploration materials and information on national and state employment trends should be disseminated. Many counselors specifically requested this information.

5. It is recommended that teacher advisement be suggested to some districts as a means to help implement Tech Prep. In some districts, teachers might be able to alleviate some of the counselors' workload which involves course scheduling. For such a system, professional development would be required to inform teachers of career exploration, portfolios, etc.

IV. PROFESSIONAL DEVELOPMENT

Tech Prep staff requested that the role of professional development be investigated. In this section, we provide some background of professional development in education, briefly report our data collection activities, and present the findings from these activities regarding the role of professional development in implementing Tech Prep. Recommendations conclude this section.

Background

Professional Development in Education

Continuing education is a requirement for certification of many professions (e.g., accountants, realtors). Rapidly changing technology dictates that professions in engineering and science maintain ongoing dissemination of information. Dynamics of technology and economics alter workplaces, requiring people in many fields to be aware of the best methods of adult learning and organizational change (Smylie, 1995).

Although it has been in existence for decades, professional development in education has recently become a primary method of educational reform. Critics of education associate in-service activities with shortcomings of teacher preparation. Others state such activities are similar to development activities in other professions; they provide individuals with an opportunity to stay knowledgeable of current methods and recent changes in laws and philosophies (Guskey & Huberman, 1995).

The intentions of traditional professional development for teachers has been to encourage and inform. It has been documented that teachers often follow similar stages throughout their careers. Studies indicate that beginning teachers are usually concerned about classroom management, determining how to best present their lessons, and non-teaching duties such as extraneous paperwork (Feiman & Floden, 1981; Stevens & Dial, 1993). As teachers become more experienced, such concerns fade but the need to remain current with their content areas increase. Even without an underlying reform agenda, development activities allow teachers to remain current during different stages of their careers (Guskey, 1995; Fessler, 1995). The majority of the current expenditures for professional development in education are for skill acquisition (Little, 1989).

Professional Development in Vocational/Technical Education

The Tech Prep Education Act states that professional development is a requirement of Tech Prep programs. Two of the seven mandates are that content of programs:

(4) include in-service training for teachers that –

(A) is designed to train teachers to effectively implement tech-prep education curricula,
(B) provides for joint training for teachers from all participants in the consortium, and
(C) may provide such training in weekend, evening, and summer sessions, institutes or workshops;

(5) include training programs for counselors designed to enable counselors to more effectively –
(A) recruit students for tech-prep education programs,
(B) ensure that such students successfully complete such, and
(C) ensure that such students are placed in appropriate employment...

(Public Law 101-392, Title III, Part E, §342, [United States Code, 1990]).

Because of the emphasis found in the Tech Prep Education Act and in the School-to-Work Opportunities Act (United States Code, P.L. 103-239), Little (1995) has written that professional development is a part of systemic secondary school reform. She stated that these activities emphasize, "a more rigorous academic education for all students, closer ties between academic and vocational preparation, and a broader conception of the work world"(Little, 1995, p. 275).

Summary

As calls for educational reform have increased within the past decade, the emphasis on professional development and its role in reform have also increased. This new emphasis has also changed the focus of much federally funded professional development from enhancing personal knowledge and skills to ways to implement systemic change. There are three primary conclusions to be drawn from the literature on professional development in education.

- Professional development in education has maintained a negative connotation, with some suggesting it is needed because of teacher inadequacies. This is in contrast to other professions which require continuing education and in which professional development has a positive image. In areas such as accounting, engineering, and real estate, ongoing courses are required to ensure that professionals are knowledgeable of changing laws and techniques within those professions.

- The majority of current professional development for educators assumes the function of continual adult education, intended to increase the knowledge and skills of individual educators.

- Other professional development activities assume a primary role in implementing systemic change.

Evaluation Activities

The goal of this aspect of the evaluation was to assess the role of professional development in the implementation of Tech Prep. Reviewing literature and conducting interviews of and surveying Tech Prep staff and consortia members comprised the primary activities for this part of the evaluation project. Interviews were conducted during site visits to eleven consortia. Questions were asked about activities provided to date, participants, topics covered, session formats, costs, planning, definition of success, and goals. It is intended that these findings could be used to enhance the role of professional development in implementing Tech Prep. The identification of successful professional development activities should provide beneficial information to all consortia within the state.

Findings

Professional Development Activities

Many consortia recently completed their fourth year of involvement in Tech Prep, with one year of planning and three years of implementation; others are completing their third year of involvement. To date, every consortium throughout the state has provided at least some professional development within their respective consortia. However, the importance of the role of professional development and the degree of emphasis vary among consortia. For a few consortia, professional development has been the primary function. For others, it has been tertiary at best. The types of activities also vary. Interviews with Tech Prep directors revealed that the professional development activities provided during the 1994-95 academic year included:

- conducting joint business/education workshops;
- conducting or funding teacher workshops (some as district in-service);
- conducting or funding counselor workshops (some as district in-service);
- conducting administrator seminars;
- providing written informational materials to school personnel;
- providing informational software to school personnel;
- sponsoring summer internships for teachers;
- sponsoring teacher shadowing at businesses;
- providing regional Tech Prep conference;
- participating in statewide conference;
- presenting at conferences for teachers, counselors, and administrators;
- providing release time for teachers and counselors to attend related conferences; and
- conducting or participating in satellite teleconferencing.

It should be noted that Tech Prep staff around the state have provided other activities which are identified as either marketing, curriculum development, or support services but which might also fall under the category of professional development (e.g., training in new curriculum, technical support, or assistance with software).

During the past two years, consortia interviews indicated that the majority of professional development activities were provided by outside contractors, most notably by the Center for Occupational Research and Development (CORD) and the Agency for Instructional Technology (AIT). However, as seen in Table 1, this is not the case for the current year. The majority of professional development has actually been directly provided by Tech Prep staff. Presenters for the majority of the remaining consortia-sponsored events were contacted by and contracted with consortia staff. Some were provided through state-sponsored grants from Carl Perkins discretionary funds (e.g., Texas A & M, David Leigh).

Participants

Table 1 presents numbers of Tech Prep-sponsored development activities, broken down by those presenting the sessions and the groups participating in the sessions. The numbers in each cell indicate the total for the 12 consortia responding to this survey item. Also, activities were not evenly distributed; the totals shown were greatly influenced by two of the twelve consortia.

Table 1. Number of Tech Prep-sponsored Activities and Participants during 1994-95 (totals for 12 consortia)

Activities: Tech Prep	Texas A&M	CORD	AIT	*Participants:* Other	
78				12	Business representatives
53				8	Secondary school board members
59				18	Secondary school administrators
108	4	7	3	27	Secondary school academic faculty
133	1	5		23	Secondary school vocational faculty
116	1	2		19	Secondary school counselors
48				15	Postsecondary school administrators
73		2	3	25	Postsecondary school faculty
52				11	Postsecondary school counselors
103				4	Students
21				11	Parents
20				4	Other

It should be noted that Texas A & M University, CORD, and AIT have presented many more professional development activities than are presented here, many of which were provided through the remaining 13 consortia and many which were not sponsored by Tech Prep consortia.

Regarding the participants, secondary school vocational teachers, academic teachers, and counselors have been provided the most consortia-sponsored development activities. Additionally, a few directors commented that they are selective in recruiting

participants, stating that they attempt to identify those who will potentially promote the program and its concepts.

Topics

Although Tech Prep-sponsored professional development covers an array of topics, the majority of them could be categorized into two broader areas: program information (including instructions on developing aspects such as articulation agreements and skills/competencies) and academics (including content areas, usually applied courses and courses integrated with related vocational courses; and instructional styles). Generally, dissemination of program information was intended to help create systemic reform. While development activities for academics could also be considered as creating systemic change, they also assumed the function of continual adult education intended to increase the knowledge of individuals. Consortia-sponsored development activities provided in 1994-95 included:

- introductory information regarding Tech Prep,
- building education/business partnerships,
- career exploration (including career assessment and employment trends),
- applied academics,
- creating and reporting skills/competencies,
- Secretary's Commission on Achieving Necessary Skills (SCANS),
- content areas (electronics, computing, mathematics, science, communication, health, English, law enforcement, business, drafting),
- teaching strategies (including instructional methods for different learning styles),
- Texas Assessment of Academic Skills (TAAS) and other testing,
- funding, and
- use of equipment.

As noted, topics not specifically related to Tech Prep were provided (e.g., learning styles or TAAS). However, many directors stated that they survey consortia members for desired topics before determining which subjects to address. A few consortia are anticipating the need to reinforce the distinctions of the Tech Prep program and its concepts during 1995-96, especially in light of recent focus on School-to-Work program implementation.

Requests from potential participants sometimes yield repetitive subjects which, one director warned, can lead to poorly attended meetings. This might also be a reason why some participants commented to DIR staff that the material presented was redundant.

Formats

Based on feedback from the 14 consortia who responded to the survey, the formats for development activities were divided as follows: lecture - 42%, hands-on - 42%, field trip - 9%, shadowing - 6%, and other - 1%. Regarding the structure of activities, it was noted that many consortia jointly sponsored activities with other consortia.

Many Tech Prep personnel also jointly presented program information with other organizations (Texas Business and Education Coalition [TBEC], Texas Scholars, and School-to-Work). Although the majority of these joint efforts to date concern marketing, some co-sponsored events are related to development activities.

Secondary school counselors were surveyed regarding professional development. Results indicated that 95 percent of the 347 respondents were aware of Tech Prep. They also stated that they learned about the program through local Tech Prep conferences (61%), statewide Tech Prep conferences (31%), and regional or state counselor conferences (47%) (percentages are not mutually exclusive). The majority (72%) had attended professional development activities for Tech Prep. When asked how helpful these activities were, counselors responded: "very helpful" - 31%, "helpful" - 31%, "somewhat helpful" - 32%, and "not helpful at all" - 6%.

Costs

On average, 11 percent of consortia budgets were spent on professional development during 1994-95. Directors reported the primary costs of professional development were consultants/presenters, travel, substitute reimbursement (release time), facilities, printing, and materials. Providing multiple presentations which were geographically convenient was mentioned as a large "financial drain." Almost half of the consortia provided reimbursement to schools for substitute teachers. In the majority of others, schools paid for release time. A few consortia split the costs, 50% - 50% or 40% (Tech Prep) - 60% (schools).

Directors were asked, "What has been the best use of expenditures on professional development?" Responses included the following topics: contextual academics, total quality management, guidance, and employment trends. However, many directors listed specific aspects of the activities as the best use of professional development funds:

- bringing in presenters to isolated regions,
- hosting workshops jointly with school districts,
- seeing interaction of secondary faculty,
- networking opportunities which occur from activities,
- offering convenient sites for activities,
- training local personnel to be future trainers, and
- paying for substitutes (because the districts could not afford to provide).

Planning

For the majority of consortia, steering committees have planned their professional development, matching such activities with the overall implementation goals. Generally, the targeted groups were educators, primarily secondary school teachers in the 1993-94 academic year, and teachers and counselors during 1994-95. In some cases, the

committees determined the topics to be presented; in others, a survey of potential attendees determined the topics. After committee decisions determined the targeted groups, consortia staff coordinated activities. Although there have been many workshops on applied academics to date, many directors stated that initial topics were not planned due to the fact that there were many needs regarding a few key topics which were immediate concerns (e.g., introductory information regarding Tech Prep, and creating and reporting skills/competencies). Of the few consortia which to date have not planned professional development, most commented that such plans are forthcoming.

To create successful professional development, Tech Prep staff listed the following factors (the top four were most often mentioned):

- providing quality presentations,
- surveying the potential participants regarding their needs,
- conducting sessions which are practical and "hands-on,"
- providing presentations at convenient times and locations,
- providing presentations to small groups, and
- allowing only teams (instead of individuals) to attend.

Others, especially those in rural areas, often mentioned a key presentation to a school or a community which created interest in Tech Prep-related subjects. For example, many consortia mentioned Bill Whitter's (State Occupational Information Coordinating Committee) presentations regarding employment trends as being influential. Business and industry tours were also mentioned as activities in which educators were interested.

Definition of Success

There was consensus among all consortia directors regarding the definition of successful professional development. Every director stated that development activities are successful if, afterward, the knowledge gained leads to use in the classroom. Although terminology differed slightly, all agreed that implementation in schools is the primary goal. Examples of such implementation were: teaching applied academics in classrooms, integrating career exploration in schools, and changing counseling and guidance to include student awareness of employment trends and career information. One director defined success as:

> "When a group of teachers attend a professional development workshop and leave there with ideas, tools, and enthusiasm that cause them to go back to the classroom and create a learning environment that enhances the learning for all students and makes students realize that education is a necessary, relevant process to pursue a job."

Future Goals

The majority of Tech Prep consortia in the state provided development activities during 1994-95. Their goal for professional development was to create change within classrooms, helping to expose participants to Tech Prep concepts such as applied academics and career awareness. The primary objective was simply to continue providing topics regarding these concepts.

More consortia plan to add business and industry facility tours during the next year. An interesting goal of one consortium for 1995-96 is to identify and recruit a Tech Prep facilitator for each school in the consortium and provide development activities as required for such personnel. This director is also working with a local teacher education college to introduce applied academics to student teachers. Another director commented that a primary goal is creating more teacher networks (between academic and vocational/technical education, business and education, and secondary education and postsecondary). For the few consortia recently beginning or not yet providing activities, committees will determine which topics to present and to which groups.

Regarding the ways to reach their goals, Tech Prep staff were asked about their needs for professional development. The most common responses were:

- quality presenters,
- presentations on integration, and
- presentations on transitions to School-to-Work.

The most common barriers to successful professional development were:

- distance to workshops,
- scheduling (especially competing with other professional development activities for a limited number of in-service days),
- participation of business and industry representatives, and
- communication through the school system to notify those who are interested in the activities.

Resistance of postsecondary personnel to participate was another barrier mentioned. Although secondary schools have been the primary focus of professional development activities, resistance of postsecondary educators to participate in the Tech Prep program was commented on within different aspects of the 1994-95 evaluation.

Conclusion

Assessment of Professional Development's Impact

The majority of consortia staff indicated that professional development has been a focus of the last two years. A few Tech Prep consortia reported sponsoring many professional development activities, many of which were conducted by consortia staff. Of

the workshops and seminars attended by DIR staff, many were attended by hundreds, and no observed activities were attended by less than 20 participants.

Although consortia have sponsored many professional development activities throughout the state, the impact of the activities would be difficult to determine. In a survey of secondary school counselors, only six percent of counselors who attended Tech Prep-sponsored development activities reported that such activities were not helpful. Evaluation staff also asked teachers and counselors who attended development activities about their usefulness. Responses depended on the topic of the session. Generally, sessions providing new information and those which the participants deemed as practical and useful were rated more favorably.

A critical measure of success was, as stated by Tech Prep staff (both the state and consortium level), seeing actual use of acquired knowledge and skills in the classroom. It is difficult to assess the overall statewide impact of the program's professional development activities. It has been observed that, for many schools, Tech Prep was the chosen vehicle for educational reform; and for many students, it was the impetus to continue into postsecondary education.

As one director commented, "just getting the word out...is not sufficient." Our surveys of and interviews with educators indicated that the majority are now aware of the program; marketing Tech Prep to secondary school teachers and counselors has been, to a large degree, successful. However, although they are aware of Tech Prep, there are many misconceptions regarding the program, its goals, and its structure. Evaluation findings indicate that marketing to business and industry representatives is needed. But for educators, professional development should be a continued focus of the Tech Prep program.

Recommendations regarding Professional Development Activities

1. Providing new information which is practical should be the primary criterion for selecting topics of professional development activities. Interesting, relevant topics and quality presentations were the main factors in providing successful professional development. Responses from surveys and interviews indicated that an appropriate choice of topic would be the best way to encourage attendance and increase the likelihood of classroom use of material.

2. Consortia budgets should include, if necessary, allocations for summer professional development activities. Scheduling of activities is problematic for many educators. Release time and release time budgets are limited. Open times for in-service days fill up quickly.

3. Information should be disseminated to all school superintendents regarding Tech Prep (the goals of the program, its structure, etc.). This recommendation was also made with regards to secondary school counselors. A pamphlet on Tech Prep could be mailed to every district superintendent in the state (the technical support at PEIMS can download a list of names and addresses and print mailing labels if necessary).

4. Tech Prep staff should develop a statewide plan for involving business and industry. This should include greater involvement at state and local conferences, including special sessions targeted at these groups. To date, little professional development is being offered for business and industry representatives. Lack of business participation is a complaint of program staff. In most consortia, business and industry representatives are the least receptive. Material should be presented in a concise manner and at convenient times. As with other joint business/education meetings, Tech Prep staff indicated that lack of productive meetings are a hindrance to business participation.

V. WORK-BASED LEARNING

The 1994-95 evaluation also focused on work-based learning and its role in the implementation of Tech Prep. In this section, we provide some background information on work-based learning at the national and state levels, briefly report our data collection activities regarding work-based learning, and present the findings from these activities. Recommendations conclude this section.

Background

The past decade has seen a renewed interest, at both secondary and postsecondary levels, in work-based learning programs as a means to improve the transition from school to work for youth. Both students and employers can benefit from participating in high-quality work experience programs (Boesel, Deich, & Rahn, 1994). Students acquire work experience and job skills, and increase the probability of permanent employment after completing their education. Employers gain access to a pre-screened pool of employees. Students participating in work experience programs are more likely to stay in school and pursue additional education.

While work-based learning is an essential element of the concept behind the Tech Prep program, it is not a required component for program funding and to date has not been an area of major emphasis in many Tech Prep programs throughout the United States. Most consortia have focused on classrooms and the articulation of academic/occupational courses between secondary and postsecondary institutions. With the passage of the School-to-Work Opportunities Act, the work-based component of the Tech Prep program is expected to receive increased emphasis. The Act includes work-based learning as one of its major components.

Work-based Learning Programs Offered at Secondary and Postsecondary Schools

Work-based learning integrates school-based instruction with structured on-the-job training. These experiences include a planned program of job training, paid work experiences, workplace monitoring, and instruction in general workplace competencies (Texas Council on Workforce and Economic Competitiveness, 1994). The two most common approaches of work-based learning offered at the secondary and postsecondary levels are cooperative education and youth apprenticeships.

Cooperative education (co-op), the largest structured work-based learning in the country today, served approximately 403,000 secondary students or eight percent of all 9-12 grade students, according to a 1992 survey. Sixty-nine percent of two-year postsecondary institutions had co-op programs serving 81,000 students or about two percent of all students. Co-op education is provided by individual schools as part of their vocational education programs, and students are placed in part-time jobs during the school

year in their field of vocational specialization. Currently, business and marketing programs are the largest sponsors of co-op education (Deich & Masten, 1994).

Youth apprenticeship programs, an approach gaining in popularity, served approximately 3,300 secondary students (Boesel, Deich, & Rahn, 1994) and 51,000 postsecondary students (Deich & Masten, 1994), based on a 1992 survey. These programs combine a structured work-based experience with classroom instruction. A sponsor provides the job-specific training at the worksite and the school provides the general training related to the craft or trade. Youth apprenticeship programs are most often found in industries with labor shortages in technician-level occupations, including hospitals, printing, and other manufacturing industries.

A third type of work experience program available at secondary schools is school-based enterprises. They differ from co-ops and apprenticeships in that they do not place students with employers. Rather, they are school-based activities that produce goods or services for sale or use (e.g., restaurants, child care centers, and auto repair shops). Unlike co-ops and apprenticeships, school-based enterprises are a viable option in communities where there are too few employers to provide sufficient jobs and training opportunities in the private sector (Kazis, 1993). Twenty-three percent of secondary schools have adopted some form of this program (Boesel, Deich, & Rahn, 1994).

Why Employers Participate

Several national studies found performing a community service to be one of the most important factors driving employer participation in work-based learning programs (Bailey, 1993; Lynn & Wills, 1994; National Alliance of Business, 1994). Employers demonstrated a desire to give something back to the communities that supported their businesses. Another important motive influencing employer participation in these programs is help in recruiting new hires (Lynn & Wills, 1994; Zemsky, 1994). For firms that consider students as potential employees, training costs become investments in the future of their organizations. In addition, those firms trust participating schools to act as screening agents and to send them students who are productive workers. Other factors identified at the national level that drive employers to hire youth include: the need to develop a higher quality workforce, the need to remain competitive, the decline of the number of qualified younger workers, and recognition of an aging workforce.

Barriers to Work-based Learning

While participation in work-based learning programs is seemingly in the best interest of employers and students, it has not been universally embraced by the business community. Many employers are reluctant to hire youth and take part in these programs due to such obstacles as costs, laws and regulations, and negative opinions about the quality of young workers. Legal, financial, student preparation, and other barriers impact employer participation in work-based learning programs. These barriers include:

- child labor laws,
- workers compensation and general liability insurance,
- program start-up costs,
- staff supervision cost and time during training,
- quality of students' educational and work skills preparation,
- the characteristics of young workers (i.e., immaturity, lack of work ethic), and
- lack of top management support. (DIR, 1994)

In addition to the barriers mentioned above, one of the biggest obstacles to making work-based learning programs a major part of the education and training system is the problem of scale. At the secondary level, there are about 6 million students in grades 11 and 12. There are a limited number of work-based learning positions for these students, especially in rural areas where there are small numbers of businesses. Co-op programs currently include about 400,000 students, while youth apprenticeships serve 10,000. Further, it has proven difficult to recruit employers for youth apprenticeship programs, and to keep them, once recruited.

Summary

Work-based learning experiences are important because they provide students with the opportunity to apply what they learn in the classroom, see the relevance of school to the workplace, and acquire essential work-readiness and broad occupational skills. For employers, work-based learning offers opportunities to translate general concerns frequently expressed about the quality of entry level workers–i.e., lack of specific job skills, and poor work attitudes and habits–into specific action. Through these programs, employers also gain access to a pre-screened pool of employees. While participation in work-based learning programs is seemingly in the best interest of employers, it has not been universally embraced by the business community. Many employers are reluctant to hire youth due to various legal, financial, and student preparation barriers.

Other findings from the literature are as follows:

- Co-ops and apprenticeships are the most common approaches of work-based learning offered at the secondary and postsecondary levels.
- Performing a community service and helping to recruit new hires are the two primary factors driving employer participation in work-based learning.
- To date, work-based learning has been a weaker element of the Tech Prep program.
- The limited number of available worksite positions hinders the ability for work-based learning to become a major part of the education and training system.

Evaluation Activities

The goal of this aspect of the evaluation was to assess the role of work-based learning in the Tech Prep program in Texas. The primary activities included individual and focus group interviews with employers and secondary vocational counselors and teachers, a mail-out survey administered to a random sample of employers in the state, and follow-up surveys of consortia directors. Interviews were conducted during site visits to eleven consortia. They represented the state geographically; were conducted at small, medium, and large businesses and schools; and represented both rural and urban areas. The interviews were designed to obtain data regarding attitudes towards Tech Prep, reasons for participating in the program, and effective practices used to implement work-based learning programs in the state. The primary purposes of the employer survey were to: determine employer involvement in and awareness of the program, learn the business community's perception of Tech Prep, and determine how to best increase employer participation in the program. The intent of the follow-up survey was to obtain quantitative data on the types of work-based learning activities being implemented around the state.

Findings

According to recent estimates, less than ten percent of Texas youth are provided with work-based learning (Texas School-to-Work Transition Task Force, 1993). In Texas, the two most widespread approaches to structured work-based learning are co-ops and apprenticeships. Cooperative education annually provides over 70,000 high school and college students in Texas with a structured work program related to their area of vocational education specialization. Apprenticeship programs, the newest of the work-based approaches, serves approximately 10,000 youth in Texas.

Demographics of Survey Respondents

The survey was sent to a random sample of businesses throughout the state. Given the targeted audience, the low return rate was not unexpected; nine percent (64) of the 750 surveys distributed were returned. The largest percentage of businesses returning the survey (23%) represented a cross-section of industries, including solid waste management, wrecker service towing, printing and copying, glass and glazing, property management, veterinarian medicine, and adult corrections. The other major categories of businesses included: wholesale and retail trade (19%), manufacturing (11%), and health care and related services (9%). The majority of businesses (83%) employed 1 to 50 employees at their worksites. Most (73%) hired part-time employees. Over half serviced urban areas greater than 100,000; 29% were in urban areas less than 100,000; 10% were primarily suburban; and 10% were in rural communities.

Student Preparation

Table 1 indicates the degree of importance respondents' companies placed on each stated skill and characteristic.

Table 1. Characteristics and Skills Sought in New Hires

	Level of Importance (by percent)			
Skills and Characteristics:	*Not Important*	*Somewhat Important*	*Important*	*Very Important*
Technical skills	7	21	41	30
Computer skills	19	23	30	28
Work ethic	2	3	28	67
Maturity	0	7	36	57
Communication skills	3	7	41	48
Social interaction skills	3	16	24	57
Problem solving skills	2	11	46	42
Math skills	7	28	42	23

Work ethic, maturity, and communications skills were the highest ranking skills and characteristics that impact the hiring decisions of respondents' companies. These results were confirmed by employers' responses to open-ended questions and comments during interviews. Some other characteristics and skills cited as important or very important in response to the open-ended questions included: honesty, leadership, building trades, and teamwork.

The types of technical skills employers would like to see improved for their businesses included: customer service, problem solving, computer applications (i.e., word-processing, spreadsheets, databases), sales skills, written and oral communication, critical reading and comprehension, and money-change competence. A better work ethic (i.e., morals and values) was also frequently cited as an area needing improvement in their businesses.

Table 2 provides the survey respondents' ratings of the stated skills and characteristics of recent high school or college students and/or graduates.

Table 2. Characteristics and Skills of Recent High School or College Students and/or Graduates

	Rating (by percent)				
Skills and Characteristics:	*Poor*	*Fair*	*Average*	*Above Average*	*Excellent*
Technical skills	21	25	46	8	0
Computer skills	16	20	42	20	2
Work ethic	23	26	38	13	0
Maturity	17	34	36	13	0
Absenteeism rate	17	26	43	13	1
Communication skills	15	37	39	9	0
Social interaction skills	15	26	44	15	0
Problem solving skills	21	30	41	2	4
Math skills	17	28	41	11	2

The characteristics and skills sought in new hires by respondent companies are lacking in the high school or college students and/or recent graduates they have hired. Communication skills, maturity, and work ethic–the three skills that received the highest ratings of important or very important to employers' hiring decisions–were rated most often as fair or poor qualities of students and/or graduates. Forty-four percent of respondents did not believe their area's educational system adequately prepares students for the workplace. When asked about ways to improve high school and/or college graduates' skills and attitudes, employers' responses included:

- training and merit ratings,
- statement of duties expected to be performed before hiring,
- discipline and development of responsibility,
- hands-on experience,
- career awareness activities,
- parents, communities, and schools closely working together,
- improve technical training in high schools, and
- job skills training.

While these findings indicate dissatisfaction with student and recent graduate's skills, only 11 percent of the respondents reported dissatisfaction with their company's recently hired employees and 36 percent believe their regions have enough qualified graduates to meet the needs of their industry.

Knowledge of and Involvement in Tech Prep and Other Educational Reform Movements

The vast majority of survey respondents (89%) had not heard of the Tech Prep program. This lack of program awareness was further cited as the highest ranking barrier to employer participation in the program; only three percent (2 of the respondents) indicated involvement in Tech Prep activities. Similarly, only three percent of the businesses cited involvement in School-to-Work, Texas Scholars, or Adopt-a-School activities. Eight percent of respondents (5) were involved in cooperative education. When asked about the kinds of Tech Prep activities they would be interested in participating in the future, the majority expressed interest (53%) in employing youth in work-based learning programs. Forty-eight percent of respondents expressed interest in participating in curriculum development. Little or no interest was reported in providing job shadowing (80%), providing equipment and materials (79%), sitting on an advisory committee (63%), providing mentors (63%), establishing occupational skills and standards (58%), providing speakers and classroom instructors (52%), and sponsoring facility tours or other career awareness activities (51%).

While the findings from the survey indicated that businesses are unaware of and/or uninvolved in Tech Prep, consortia directors reported participation from businesses in a wide range of Tech Prep activities. Within the 14 consortia that responded, over 2,237 business participants were reported. The number of business participants reported ranged from 7 to 1,005 per consortium. Based on the figures reported, the activities in which

employers are most often involved are: providing facility tours or other career awareness activities, hiring graduates, providing work-based learning, and developing curricula. In addition, business and industry comprise 31% (225) of the 734 consortia committee members that were reported.

Findings from the site visit interviews indicated that health care facilities (e.g., hospitals, nursing homes) and manufacturing companies are the types of businesses which most often provide work-based learning programs to Tech Prep students. Other types of businesses that offer these programs include: newspapers, veterinarian clinics, law offices, banks, automotive repair and body shops, child care centers, police stations, Chambers of Commerce, truck companies, pharmacies, and high tech companies. Although involved in the program, it was noted during the interviews that many of these employers seem to lack a general understanding of the Tech Prep program. They were unfamiliar with the concept of the program as well as the sequence of Tech Prep classes students were taking in relation to their vocational specialization.

Based on this year's evaluation activities, we found that many consortia do not keep track of their region's work-based learning activities. Most were unaware about the types of activities offered, the schools involved in these programs, and the number of student participants.

Barriers to Participating in Tech Prep

Table 3 indicates the level of impact each stated barrier has on employer participation in Tech Prep programs.

Table 3. Barriers to Participating in Tech Prep

	Level of Impact (by percent)			
Barrier:	*None*	*Minor*	*Moderate*	*Major*
Not aware of the program	30	11	11	47
Lack of time to dedicate to program	36	10	38	17
Short of staff	32	12	32	24
Involved with other educational initiatives	73	10	3	15
Difficulty in working with school & college personnel	78	12	5	5
Difficulty in dealing with educational bureaucracies	70	20	0	10
Not interested in the concept of the program	68	15	8	10
Program is not relevant to my business	56	22	9	13
Financial constraints	48	22	13	18

Almost half of the survey respondents indicated that lack of program awareness is a major barrier to their participation in Tech Prep. Being short-staffed, having financial constraints, and lacking time to dedicate to the program were also highly ranked barriers.

During the site visits, employers and consortia directors most frequently cited insurance issues (general liability, workers' compensation) and limited openings for

interested students as barriers to work-based learning. Scheduling conflicts was another barrier frequently mentioned. Employers reported that due to class scheduling, students are unable to work at the times they are most needed. In addition, work hours conflict with band and other extracurricular activities. Other barriers reported included: union issues, transportation in rural areas, unpaid positions, personality conflicts between students and employers and employers and schools, obtaining credentialed instructors at schools, child labor laws, supervisory time on the part of college instructors, lack of time to recruit businesses, and identifying the appropriate individuals within companies with whom to discuss starting a program.

Key Linkages and Events of Successful Work-based Learning

Most of the work-based learning programs investigated in this study were built on co-ops that were offered before Tech Prep existed; a few of the programs were established specifically for Tech Prep. In the majority of cases, the school's vocational counselor or teacher initiated the start of the program by approaching the employer by telephone or in person. However, some programs were initiated by the employer. Some schools used pre-existing contacts (e.g., advisory committee members) to recruit employers. The consortia also helped provide contacts.

At one school, the key event was conducting a needs assessment to determine if there was a need for a health occupations program. Once this need was determined, the proposed program was presented to the superintendent. With his backing and support, the school approached a hospital about getting involved in the program.

Most consortia lacked a specific plan for work-based learning; they primarily built on programs that were already in place or developed programs on an individual basis. The criteria for student admission into work-based programs varied by district and program although most required some pre-requisite courses related to their area of specialization. Modified versions of Texas Education Agency (TEA) curriculum and curriculum developed by state colleges were used for these courses. For one program, the curriculum was developed through the combined efforts of the region's education service center, Junior Achievement, and the Tech Prep consortium. Other student selection criteria included courses in employability skills, good conduct, grades, attendance records, teacher recommendations, and parental permission.

In terms of training, most is provided on the job. Employers generally had an orientation session for students, which provided information on company policies and safety. Some employers provided on-going seminars related to the student's position. For example, a child care center provided its students with classes in parent communication, cardiopulmonary resuscitation (CPR), and classroom discipline. Based on observations, as well as comments made by school and business personnel during the site visits, the worksite instruction was unrelated to the curriculum taught in the classroom in many work-based learning programs.

Factors of Successful Work-based Learning

Factors that were cited by employers as contributing to program success included:

- motivated and interested students,
- enthusiastic instructors,
- good working relationships between schools and business,
- teacher-student interaction,
- updated equipment, and
- hard work.

For one employer interviewed, success was defined as students completing the program and continuing education or employment in a related field. Another employer defined program success as students graduating school with a basic understanding of a good work ethic and the reality of what it is like to earn a living. To consortia directors, work-based learning is successful when it is:

- linked to classroom instruction,
- employers are actively involved in the learning that takes place on the job,
- a student is capable of learning the skills the employer desires and the employer is happy with the end product, and
- students have modified their behavior in the classroom or workplace.

Goals and Objectives for 1995-96

Consortia directors have a variety of goals and objectives for work-based learning in the 1995-96 school year. They include:

- providing staff development for businesses and schools;
- increasing the number of programs;
- developing strong skills for students in their career pathways;
- increasing business involvement on advisory committees;
- continuing to use contacts from advisory committees;
- continuing to ask businesses to facilitate workshops;
- overcoming insurance regulation barriers;
- making more contacts through Chambers of Commerce and other business networking activities;
- developing booklets on internships, job shadowing, etc.; and
- coordinating with School-to-Work to provide worksites for students who are in Tech Prep pathways.

Conclusions

While business and industry involvement in Tech Prep has increased from last year, the lack of participation from this group statewide continues to be problematic. Based on

the results of interviews and surveys, this can be largely attributed to business and industry's lack of awareness of the program. In addition to non-participants being unfamiliar with the program, participants seem to lack a general understanding of the Tech Prep concept. Statewide and local marketing efforts to business and industry are needed to increase employer understanding of and participation in the Tech Prep program.

To increase employer interest in the program, it is also important for consortia to research the types of activities in which local businesses are most interested in participating. During interviews with teachers and counselors, many indicated that they were interested in job shadowing activities for teachers and students. In contrast, 80 percent of employers surveyed expressed little or no interest in job shadowing. This may be due to financial constraints and lack of staff, which were two of the highest ranked barriers to their participation in Tech Prep. To increase employer participation, it is thus important for schools to know which activities employers are interested in sponsoring before approaching them with a list of activities in which they are not interested.

Work ethic, maturity, and communication skills are the three most desired skills in new hires, yet the three skills respondents say are most lacking in high school and college graduates. These areas need to be better incorporated into the Tech Prep curricula and mastered before students are placed in worksite positions.

During the site visits, we observed that the worksite and classroom instruction in many of the work-based learning programs do not coincide. To ensure that students are getting the most from their worksite experiences, it is important for schools to monitor the tasks their students are performing to make sure they are related to the curriculum and their field of vocational specialization.

Another problematic finding is the limited number of slots available for worksite positions. Schools must be creative in providing students with workplace experiences. For example, schools in rural areas or in locations with small numbers of employers could institute larger numbers of school-based enterprises and simulated workplace settings. These types of experiences will give students real world experience yet not involve placement at worksites. Further, skills needed in the worksite could be better incorporated in the classroom curricula, through such activities as group projects for employers (e.g., marketing a product), and sponsoring events for community charitable organizations (e.g., students could be responsible for event from start to finish). These types of activities would help improve a number of necessary skills, including communications (written and verbal), social interaction, and problem-solving.

Finally, it is important for consortia to develop systems that better track work-based learning activities. Findings indicate that most consortia are unaware of the types of activities offered in their regions, the schools at which these activities are offered, and the number of student participating in these programs. These data are necessary in order for consortia staff to be able to accurately measure program success and determine specific areas needing improvement.

Recommendations regarding Work-based Learning

1. Increased marketing efforts are needed for business and industry. Findings indicate that the lack of program awareness is the biggest barrier impacting employer participation in Tech Prep. Also, those who are involved in the program should be better informed about program concepts and requirements.

2. More school-based enterprises should be developed in schools located in rural areas with small numbers of employers. These experiences can provide larger numbers of students with work-based learning in areas where limited opportunities are available. Such enterprises may include school restaurants, construction projects, child care centers, auto repair shops, hair salons, and retail stores.

3. Emphasis should be placed on employability skills courses that focus on work ethic, appropriate conduct in the workplace, and safety prior to placing students in worksite positions. Other skills desired by employers who are sponsoring these experiences should also be incorporated in these courses. This would help better prepare students for their work-based experiences and increase the likelihood that employers will be satisfied with their new hires. Further, employability courses can be used as a selling feature to businesses when recruiting them to sponsor work-based learning programs.

4. Consortia should conduct a survey of businesses in their regions to determine in which Tech Prep activities they would be most interested in participating.

5. To enhance the work-based learning aspect of Tech Prep, consortia should keep accurate records of the different work-based learning activities offered, schools offering programs, and the number of the students participating in these programs. With these quantitative data, consortia will be better able to measure the progress made in work-based learning and determine what areas need improvement.

VI. CONCLUSION

This section concludes the final report of the 1994-95 Tech Prep evaluation. Summaries of each of the previous sections are presented below. Recommendations regarding program implementation are provided and recommendations of previous sections are repeated under their respective headings.

Current State of Tech Prep Implementation

Summary

Many of the implementation difficulties observed during the 1993-94 academic year have been overcome. Compared to the 1993-94 student data, the number of Tech Prep students in secondary schools more than doubled, while the number of postsecondary Tech Prep students nearly tripled in the 1994-95 school year. There were more schools and colleges participating in the program. There are more approved programs being offered at schools and colleges. Leadership and the clarity of roles at the state level have improved, leading to better communication and cooperation between and among state agencies and the consortia. In addition, the issue of a statewide transfer of articulated credit is being addressed. At the state and local levels, strategic planning and marketing of the program have improved. Also, there appears to be more of a consensus among directors regarding the definition of a Tech Prep student.

However, some problematic areas include: the definition, identification, and coding of Tech Prep secondary school students; business participation; uncertainties about funding and Tech Prep's role under School-to-Work; and inconsistencies in implementation. There were also isolated problems. For example, a few college databases do not contain fields to identify and track Tech Prep participants, school personnel in some consortia do not see the integrated curricula being emphasized, and some work-based learning programs do not relate the classroom material to the worksite. The recommendations below are those which seemed to be relevant to the majority of consortia.

Recommendations regarding Program Implementation

1. Tech Prep should be implemented consistently statewide. Secondary school teachers and counselors mentioned incentives which could improve student participation in Tech Prep. Primarily, this is not by providing more incentives, but by providing consistent information regarding how articulated credit is awarded (e.g., Are courses pass/fail? Is the program a degree-shortening program? Will the articulated credit transfer to other colleges?).

2. Tech Prep staff should consider alternative methods and contacts for schools in which implementation is difficult. There are schools within the state in which Tech Prep and its concepts are completely implemented (e.g., all students receive career exploration

materials, students complete an academic plan, a career advisor is on staff). However, Tech Prep staff have reported that some school personnel are difficult to contact. In such cases, some Tech Prep personnel have by-passed principals and worked directly with counselors or by-passed counselors and worked directly with teachers.

3. Tech Prep should focus attention on postsecondary involvement, especially at the four-year level. Results of surveys and interviews indicated that efforts to market the program to secondary schools have been successful. The majority of secondary school personnel are aware of Tech Prep and, of these, many are favorable towards the program. However, many personnel at postsecondary educational institutions are reported to be reluctant to participate. Many do not see the relevance of the program; the student recruitment aspect of the program is apparently not understood.

4. Statewide cooperation among related programs should be encouraged. Although many Tech Prep consortia work cooperatively with the Texas Business Education Coalition, Adopt-a-School, Texas Scholars, and School-to-Work, statewide cooperation has been suggested to eliminate the duplication of effort and increase the resources to market the overlapping concepts of the programs. Given that uncertainties about the future of these programs and possible consolidation under School-to-Work have been reported, a concerted effort among these programs is recommended.

5. Tech Prep should advocate designated school and college personnel to implement program concepts. A few secondary schools that were observed during 1994-95 site visits were comprehensive in implementing Tech Prep concepts. Applied academics were promoted, career exploration courses were offered (if not mandated), and school/worksite links were actively sought. One common factor among these schools was a designated career advisor on staff who emphasized these aspects of Tech Prep.

Secondary School Counseling

Summary

Evidence was seen that the program's marketing efforts have been successful. As with teachers, secondary school counselors are aware of Tech Prep. The majority of secondary school counselors who were interviewed or surveyed had heard of the program. Also, of those working with Tech Prep, the majority are favorable towards the program. Although the majority of the educators are aware of Tech Prep, many are not informed about the specifics of the program. Based on the comments from the interviews and surveys, this lack of information stems from inconsistent implementation among the schools and general misconceptions about the program.

Recommendations regarding Secondary School Counselors

1. Because of limited counselors' time, professional development activities should be useful, concise, and provided at convenient times of the year (e.g., scheduled away from TAAS test dates). Many counselors mentioned summer as an appropriate

time. Although counselors were aware of career exploration and of Tech Prep, information on both of these topics was requested. Materials should include information not readily available to them (e.g., employment trends).

2. Information should be disseminated on what the Tech Prep program is and is not. For example, many counselors did not know that Tech Prep emphasizes postsecondary education and that postsecondary education is a part of the program. A pamphlet on Tech Prep could be mailed to every secondary school counselor in the state. The technical support at PEIMS can download a list of names and addresses and even print mailing labels.

3. Sessions should be developed specifically for superintendents, principals, and counselors at both statewide and local conferences. The majority of Tech Prep marketing and professional development activities have been targeted towards secondary school teachers. Counselors commented that school and district administrators were unfamiliar with the program, its concepts, and structure.

4. Career exploration materials and information on national and state employment trends should be disseminated. Many counselors specifically requested this information.

5. It is recommended that teacher advisement be suggested to some districts as a means to help implement Tech Prep. In some districts, teachers might be able to alleviate some of the counselors' workload which involves course scheduling. For such a system, professional development would be required to inform teachers of career exploration, portfolios, etc.

Professional Development

Summary

It appears that Tech Prep has been successfully marketed towards educators. The majority of those interviewed and surveyed were aware of Tech Prep. They know about the program, but many are not familiar with the program's specifics. Therefore, professional development for educators should be a continued focus. The majority of consortia staff indicated that professional development has been a focus of the last two years. Evaluation staff asked teachers and counselors who attended development activities about their usefulness. Although responses depended on the topic of the session, in general, sessions providing new information and those which the participants deemed as practical and useful were rated more favorably.

Recommendations regarding Professional Development

1. Providing new information which is practical should be the primary criterion for selecting topics of professional development activities. Interesting, relevant topics and quality presentations were the main factors in providing successful professional development. Responses from surveys and interviews indicated that

an appropriate choice of topic would be the best way to encourage attendance and increase the likelihood of classroom use of material.

2. Consortia budgets should include, if necessary, allocations for summer professional development activities. Scheduling of activities is problematic for many educators. Release time and release time budgets are limited. Open times for in-service days fill up quickly.

3. Information should be disseminated to all school superintendents regarding Tech Prep (the goals of the program, its structure, etc.). This recommendation was also made with regards to secondary school counselors. A pamphlet on Tech Prep could be mailed to every district superintendent in the state (the technical support at PEIMS can download a list of names and addresses and print mailing labels if necessary).

4. Tech Prep staff should develop a statewide plan for involving business and industry. This should include greater involvement at state and local conferences. To date, little professional development is being offered for business and industry representatives. Lack of business participation is a complaint of program staff. In most consortia, business and industry representatives are the least receptive. Material should be presented in a concise manner and at convenient times. As with other joint business/education meetings, Tech Prep staff indicated that lack of productive meetings are a hindrance to business participation.

Work-based Learning

Summary

Although business and industry involvement in Tech Prep has increased from last year, the lack of participation from this group statewide continues to be problematic. Based on the results of interviews and surveys, this can be largely attributed to business and industry's lack of awareness of the program. In addition to non-participants being unfamiliar with the program, participants seem to lack a general understanding of the Tech Prep concept. State and local marketing efforts to business and industry are needed to increase employer understanding of and participation in the Tech Prep program. To increase employer interest in the program, it is also important for consortia to research the types of activities in which local businesses are most interested in participating.

Recommendations regarding Work-based Learning

1. Increased marketing efforts are needed for business and industry. Findings indicate that the lack of program awareness is the biggest barrier impacting employer participation in Tech Prep. Also, those who are involved in the program should be better informed about program concepts and requirements.

2. More school-based enterprises should be made available in schools located in rural areas with small numbers of employers. These experiences can provide larger numbers of students with work-based learning in areas where limited opportunities

are available. Such enterprises may include school restaurants, construction projects, child care centers, auto repair shops, hair salons, and retail stores.

3. Emphasis should be placed on employability skills courses that focus on work ethic, appropriate conduct in the workplace, and safety prior to placing students in worksite positions. Other skills desired by employers who are sponsoring these experiences should also be incorporated in these courses. This would help better prepare students for their work-based experiences and increase the likelihood that employers will be satisfied with their new hires. Further, employability courses can be used as a selling feature to businesses when recruiting them to sponsor work-based learning programs.

4. Consortia should conduct a survey of businesses in their regions to determine in which Tech Prep activities they would be most interested in participating.

5. To enhance the work-based learning aspect of Tech Prep, consortia should keep accurate records of the different work-based learning activities offered, schools offering programs, and the number of the students participating in these programs. With these quantitative data, consortia will be better able to measure the progress made in work-based learning and determine what areas need improvement.

Final Note

A primary concern throughout the second half of the past academic year was the future of the program, specifically, its funding and its structure on the federal level. The quote below concerns this issue. It is from a business representative working with a Tech Prep consortium.

> The education process should be driven by leadership and not driven by polls. There should be a process of becoming federally independent instead of federally dependent. We should not say, "We don't need you." But it would be smarter to be a model and a leader and become federally independent from a positive perspective instead of being negative. We should concentrate on leadership.

Examples of innovation were seen during the 1994-95 academic year. If program personnel encountered problems in collaborating with schools in a consortium, a structure was devised to effectively communicate with all participants. If businesses were not available to rural schools for school/worksite programs, school enterprises were created or school personnel contacted employers to collect problems for high school seniors to help solve. If resources were not available for marketing or professional development, Tech Prep personnel worked with other programs to consolidate their efforts. Solutions to such problems were not observed in the previous year.

This concludes the report of the 1994-95 evaluation of Tech Prep System Development and Implementation in Texas Public Schools and Institutions of Higher Education. It is hoped that our evaluation efforts will contribute to the continued improvement of Tech Prep in Texas.

References

Association for Counselor Education and Supervision (1990). Standards and procedures for school counselor training and certification. *Counselor Education and Supervision, 29*(4), 213-215.

Bailey, T. (1993). Can youth apprenticeships thrive in the United States? *Educational Researcher, 22*(3), 4-10.

Boesel, D., Rahn, M., & Deich, S. (1994). *National assessment of vocational education: final report to Congress, vol. III*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Decision Information Resources, Inc. (1994). *Employer incentives and technical assistance project*. Houston, TX: Author.

Deich, S., & Masten, C. (1994). Work experience programs. In *Interim Report to Congress*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.

Fairchild, T. N. (1993). Accountability practices of school counselors: 1990 national survey. *The School Counselor, 40*(5), 363-374.

Fairchild, T. N. (1994). Time analysis: Still an important accountability tool. *The School Counselor, 41*(4), 273-280.

Feiman, S., & Floden, R. E. (1981). *A consumer's guide to teacher development*. East Lansing: Institute for Research on Teaching, Michigan State University. (ERIC Document Reproduction No. ED 207970).

Fessler, R. (1995). Dynamics of teacher career stages. In Guskey, T. R. & Huberman, M. (Eds.) *Professional development in education: New paradigms & practices* (pp. 171-192). New York, NY: Teachers College Press.

Guskey, T. R. (1995). Professional development in education: In search of the optimal mix. In Guskey, T. R. & Huberman, M. (Eds.) *Professional development in education: New paradigms & practices* (pp. 114-132). New York, NY: Teachers College Press.

Guskey, T. R., & Huberman, M. (1995). Introduction to professional development. In Guskey, T. R. & Huberman, M. (Eds.) *Professional development in education: New paradigms & practices* (pp. 1-6). New York, NY: Teachers College Press.

Herr, E. L. (1979). *Guidance and counseling in the schools: Perspectives on the past, present, and future*. Falls Church, VA: American Personnel and Guidance Association.

Kaplan, L. S., & Geoffroy, K. E. (1990). Enhancing the school climate: New opportunities for the counselor. *The School Counselor, 38*(1), 7-12.

Kazis, R. (1993). *Improving the transition from school-to-work in the United States.* Washington, DC: American Youth Policy Forum, Competitiveness Policy Council, and Jobs for the Future.

Little, J. W. (1989). District policy choices and teachers' professional development opportunities. *Educational Evaluation and Policy Analysis, 11*(2), 165-179.

Little, J. W. (1995). Redesigning vocational education. *Education and Urban Society, 27*(3), 274-293.

Lynn, J., & Wills, I. (1994). *School lessons/work lessons.* Washington, DC: Institute for Educational Leadership.

Mitchell, A., & Gysbers, N. C. (1978). Comprehensive school guidance and counseling programs: Planning, design, implementation, and evaluation. In *The status of guidance and counseling in the nation's schools.* Washington, DC: American Personnel and Guidance Association.

National Alliance of Business (1994). *How school-to-work works for business.* Annapolis, MD: Author.

Partin, R. L. (1993). School counselors' time: Where does it go? *The School Counselor, 40*(4), 274- 280.

Peeks, B. (1993). Revolutions in counseling and education: A systems perspective in schools. *Elementary School Guidance & Counseling, 27*(4), 245-251.

Roberts, E. B., & Borders, L. D. (1994). Supervision of school counselors: Administrative, program, and counseling. *The School Counselor, 41*(3), 149-157.

Rotter, J. C. (1990). Elementary school counselor preparation: Past, present, and future. *Elementary School Guidance & Counseling, 24*(3), 180-187.

Rye, D. R., & Sparks, R. (1991). Planning and management: Keys to a successful K-12 counseling program. *The School Counselor, 38*(4), 263-267.

Shertzer, B., & Stone, S. C. (1981). *Fundamentals of guidance.* Boston, MA: Houghton Mifflin.

Smylie, M. A. (1995). Teacher learning in the workplace. In Guskey, T. R. & Huberman, M. (Eds.) *Professional development in education: New paradigms & practices* (pp. 92-113). New York, NY: Teachers College Press.

Stevens, C. J., & Dial, M. (1993). A qualitative study of alternatively certified teachers. *Education and Urban Society, 26*(1), 63-77.

Texas Council on Workforce and Economic Competitiveness (1994). *Request for proposal: Texas school-to-work opportunities development grant proposal*. Austin, TX: Author.

Texas Education Agency (1990). *The comprehensive guidance program for Texas public schools: A guide for program development pre-k-12th grade*. Austin, TX: Author.

Texas Education Agency (1994). *Counselors in Texas public schools (report number 5)*. Austin, TX: Author.

Texas School-to-Work Transition Task Force (1993). *Texas school-to-work opportunities development grant proposal.* Austin, TX: Author.

United States Code (1990). Public law 101-392. Washington, DC: U. S. Congress.

United States Code (1994). Public law 103-239. Washington, DC: U. S. Congress.

Voc Ed advocates rally for Tech Prep setaside. (1995, February 2). *Vocational Training News, 26*(4), 3-4.

Zemsky, R. (1994). *What employers want: Employer perspectives on youth, the youth labor market, and prospects for a national system of youth apprenticeships.* Pittsburgh, PA: National Center on the Educational Quality of the Workforce.